

EVALUATION OF TWO MULTI-SHIPYARD COOPERATIVE TRAINING PROGRAMS

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16. Abstract <p>Two cooperative training programs have played a valuable role in the Norfolk, Virginia and Seattle, Washington shipbuilding communities. The programs are, respectively: (1) the Tidewater Maritime Training Institute, and (2) the Cooperative Apprentice Training Program.</p> <p>The cooperative training programs focus on the training of individuals to perform shipyard-related tasks. As a result of each program, and the established cooperation between the shipyards, there is an increased resource of qualified shipyard workers in each area. This resource increase has had a favorable impact on the shipbuilding job market. Further, it has helped to decrease training costs at each participating shipyard, and increased the productivity of a new hire or newly promoted individual.</p> <p>The purpose of this report is to show the results of an investigation and evaluation of the two separate programs. The project has identified information which will assist those in other geographical areas to establish similar programs. Topics addressed includes:</p> <ul style="list-style-type: none"> -geographic factors associated with each program's development; -industrial factors which led to their establishment; -political factors which had influence on the programs, and -significant results to date. 					
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FOREWORD

Cooperative training exists when two or more businesses unite to establish a common training program for their skilled trades employees. Generally, the participating companies do not have sufficient resources to fund their own individual training program. For the cooperative training programs to be effective, the businesses should share in common: (1) their field of specialization, and (2) their geographic location.

Two cooperative training programs have played a valuable role in the Norfolk, Virginia and the Seattle, Washington shipbuilding communities. The programs are, respectively: (1) the Tidewater Maritime Training Institute and, (2) the Cooperative Apprentice Training Program.

These cooperative training programs focus on the training of individuals to perform shipyard-related tasks. As a result of each program, and the established cooperation between the shipyards, there is a vast resource of qualified shipyard workers in each area. This resource has had a favorable impact on the shipbuilding job market. Further, it has helped to decrease training costs at each participating shipyard, and increased the productivity of a new hire or newly promoted individual.

While each program trains shipyard workers, they are, none the less, significantly different. The Norfolk program focuses on the training of inexperienced people to become shipyard helpers. Hence, the program concentrates on teaching the students the basics of how to use tools associated with ship-production and ship-repair. The student is also exposed to basic mathematics and to ship nomenclature. The Norfolk program is directed to giving the student a broad elementary background in many of the tasks associated with modern ship production.

The Seattle program provides journeyman training to individuals, thereby expecting a higher level of attainment among its entering students. This program was established to develop a completely trained worker at the craftman's level.

The purpose of this report is to provide the results of an investigation and evaluation of the two separate programs. The project has identified information which will assist those in other geographic areas to establish similar programs. Topics addressed include:

- geographic factors associated with each program's development;

- industrial factors which led to their establishment;

- political factors which had influence on the programs, and

significant results to date.

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- Ms. Marlene Kelly, Assistant Manager of Personnel and Apprenticeship and Trainee Coordinator at Todd Pacific Shipyards-Seattle Division.

This project is one product of many projects managed and cost-shared by The University of Michigan for the National Shipbuilding Research Program. The program is a cooperative effort of the Maritime Administration's Office of Advanced Ship Development, the U.S. Navy, the U.S. shipbuilding industr, and selected academic institutions.

EXECUTIVE SUMMARY

This report provides the details concerning multi-shipyard cooperative training programs in two separate geographic areas of the U.S. The report describes how they developed, how they are currently operating, and what elements might be of benefit to other maritime areas in the U.S.

The first program discussed is a "shipyard helper" training program in the Norfolk, Va. area. Excellent training is accomplished through significant cooperation among the local shipbuilding and repair industry. The program features a training center established by the local industry and the use of Federal funding under the Jobs Training Partnership Act (JTPA) of 1982.

The second program deals with cooperation among shipbuilders, state, unions, and vo-tech institutes/community colleges in the Seattle area. The program is designed to produce broadly experienced marine journeymen. Separate programs exist for various skill trades. Features include Joint Apprenticeship and Training Committees (JATC) and the use of trust funds.

The degree of detail provided for each program is deliberate. It is hoped that shipbuilding and repair industries in other maritime communities will use this detail to:

- (1) determine if some form of cooperative maritime skill training is desirable and feasible for their area, and
- (2) if so, take steps towards the development and implementation of a cooperative program.

The following conclusions and recommendations were derived for each of the two respective programs.

For the Norfolk area program, the report concludes that

- (1) The local shipyard industry executives actively support the Norfolk cooperative training program.
- (2) The Private Industry Council (PIC) and the Southeastern Tidewater Area Manpower Authority (STAMA), charged with proper disbursement of Federal funds, are very pleased with the results of this program.
- (3) The Norfolk area cooperative program is effectively operated and implemented.
- (4) Students accepted into the program have high course-completion and job-placement rates.
- (5) There are a number of influences within the Norfolk geographic area that contribute to the success of the Training Center.

- (6) At the outset, there were several major factors that preceded implementation and success of the program.

Other geographic areas in the U.S. which are considering cooperative maritime training programs should:

- (1) Determine the availability and appropriateness of JTPA funds for maritime training.
- (2) Identify a method of organizing the local shipyard industry for the purpose of establishing cooperative training (e.g., an association, a non-profit educational foundation, etc.).
- (3) Determine the nature of "in kind" support that the local maritime industry can furnish to a cooperative program.
- (4) Contact the Director, TMTI, if other specific information is needed on the Norfolk area program.

For the Seattle area programs, the report concludes that

- (1) Cooperative apprenticeship programs in the Seattle area are aimed at producing fully trained journeymen.
- (2) At the time of this evaluation (late 1984), it is evident that the economic level of shipyard activity in the Seattle area has affected all aspects of cooperative marine apprentice training.
- (3) The union boilermaker, electrician, and plumber apprentice training coordinators, a Washington State apprentice advisor, and the labor and personnel representatives of management at Todd and Lockheed cite contributions made by the agencies involved.
- (4) The JATC and the training trust function well in providing funds for managing, supervising, and Promoting a successful apprenticeship.

Other geographic areas in the U.S. which are considering cooperative maritime training programs should:

- (1) Determine the availability and suitability of training trust funds as a mechanism for funding.
- (2) Examine the JATC concept as a possible model for situations necessitating joint industry/union involvement in training.
- (3) Assess the need and availability of accredited community colleges and/or vo-tech institutes to participate in the training program.

- (4) Contact their state's Apprenticeship Training Council (or the equivalent) for determination of state law on apprentice programs.

Finally, the last section of the report offers guidance on how to determine need and undertake initiating steps. Points of contact for additional information and assistance are identified.

CONTENTS

	<u>Page</u>
FOREWORD.	v
EXECUTIVE SUMMARY	vii
1. CONTENTS AND PURPOSE OF THE REPORT.	1
2. METHODS AND PROCEDURES FOR CONDUCTING THE EVALUATION	2
3. FINDINGS FOR THE NORFOLK AREA SHIPYARD HELPER PROGRAM.	3
3.1. Overview.	3
3.2. Area Description.	4
3.3. Inception and Development	4
3.4. Current Program	7
3.4.1. Legal Basis	7
3.4.2. Objective of the Training	7
3.4.3. The Federal Jobs Training Partnership Act	8
3.4.4. Funding and Finance	10
3.4.5. Organization.	13
3.4.6. Facilities.	14
3.4.7. Recruitment, Assessment, and Selection.	16
3.4.8. Curricula and Instruction	17
3.4.9. Hiring and Retention.	22
3.5. Conclusions (Norfolk Geographical Area)	23
3.6. Recommendations	26
4. FINDINGS FOR THE SEATTLE AREA MULTI-SHIPYARD COOPERATIVE APPRENTICE TRAINING PROGRAM.	26
4.1. Overview.	26
4.2. Area Description.	27
4.3. Inception, Development, and Authority for the Program.	27
4.4. Boilermakers.	30
4.4.1. Legal Basis	30
4.4.2. Objective	32
4.4.3. Organization.	32
4.4.4. Funding and Finances.	32
4.4.5. Facilities.	35
4.4.6. Recruitment and Selection	35
4.4.7. Work and School Requirements.	36
4.5. Marine Electricians	37
4.5.1. Legal Basis	37
4.5.2. Objective	37

CONTENTS (continued)

	<u>Page</u>
4.5.3 Organization	39
4.5.4. Funding and Finances.	39
4.5.5. Facilities	39
4.5.6. Recruitment and Selection	39
4.5.7. Work and School Requirements.	40
4.6. Conclusions (Seattle Geographical Area)	42
4.7. Recommendations.	44
 5. RECOMMENDED GUIDANCE FOR COOPERATIVE MARITIME TRAINING IN OTHER GEOGRAPHICAL AREAS	 45
5.1. Overview.	45
5.2. Who Should Initiate Action.	47
5.3. Should We Have a Cooperative Maritime Skill Training Program in Our Area?.	47
5.4. What Are The Initial Steps Towards A Coopera- tive Training Program?	49
5.4.1. Who Should Be Trained?.	49
5.4.2. Can An Initiating Organization Be Identified.	49
5.4.3. What Are Possible Sources of Funding and Tuitions?.	50
5.4.4. What Specifics of Training Needed to Be Addressed in Detail?	51
5.5.5. What Are the Student Recruitment, Selection, and Placement Considerations?.	52
5.5. Who Can Be Contacted for Additional Information	53

Appendix

A	Tidewater Maritime Training Center Supporting Data.	A-1
B	Potential Areas for Shipyard Cooperation in Training.	B-1
C	List of Primary Contacts.	C-1
D	Questionnaire Checklist	D-1

ILLUSTRATIONS

<u>Figure</u>		Page
1	Norfolk Area Major Players.	11
2	Tool Rack	15
3	Training Center Layout.	16
4	Welding Area.	18
5	Motor and Pump Work Area.	19
6	Graduation.	21
7	Major Players in Boilermakers Apprentice Training.	33
8	Comparison of Major Program Factors (by Geo- graphic Area).	46

<u>Table</u>		
1	Norfolk Program Funding	12
2	Training Center Curriculum.	19
3	Tidewater Maritime Training Center Job Placement Data.	22
4	Marine Apprentice/Trainee Programs in Seattle Area.	31
5	Apprenticeship Training & Journeyman Upgrading - Shop/Marine Blueprint & Layout Classes	38

1. CONTENT AND PURPOSE OF THE REPORT

This report, prepared under the auspices of the University of Michigan for the National Shipbuilding Research Program's Education Panel (SP-9), evaluates two existing cooperative shipyard training programs: (1) the Tidewater Maritime Training Institute located in Norfolk, Virginia, and (2) the Cooperative Apprentice Training Program located in Seattle, Washington. The report addresses each program in detail, with emphasis on their inception, history of development, current status, and effectiveness. The following major areas were examined during the evaluation:

- o The inception and development of the training program; its initial financial sponsorship and principal individuals or companies; organizations involved in the program's development; and the original organizational structure.
- o The major changes in program arrangements since inception and the reasons therefore.
- o The current program arrangements in detail:

Recruitment of apprentices/trainees.

Financial sponsorship of apprentices/trainees.

Policymaking of program.

Hiring of program completers.

Requirements for completion by trade.

Major training facilities used in the program.

Methodology used to meet requirements in terms of types of instruction, aids, formal courses, etc.

Evaluation of program and follow-up on attendees.

0 Aspects of the program where cooperation among the state, labor (union), management, and/or local government have been agreed to and, in fact, are working.

The purpose of the report is to provide a basis for identifying cooperative systems and/or practices used in Norfolk and Seattle that might have utility in other geographic areas of the United States where maritime shipbuilding and repair activity exists.

2. METHODS AND PROCEDURES FOR CONDUCTING THE EVALUATION

Since the two programs are located in widely separated geographic areas with different social and economic circumstances, the investigative means used to evaluate them had to be adaptable to the different situations yet provide controls for consistency and reliability. The method chosen to accomplish this was the focused interview technique. The basis for this informal but structured approach was a detailed questionnaire checklist. The checklist was designed after a field trip to a shipyard training site and an apprentice school in a similar but different industry. Individual questionnaires were developed for the program managers, participating employers, Students/program completers and instructors. The questionnaire checklist was used by the interviewer to ensure that all pertinent evaluation factors were discussed. In advance of on-site visits by the interviewers, letters were sent to the training program managers outlining the areas to be covered during interviews and discussions.

For the Norfolk program, interviews were conducted with: (1) four executives of ship repair companies, (2) the director of the Training Center and its three instructors, (3) several Training Center students, (4) several graduates working in ship repair yards, and (5) the director of the Area Manpower Authority.

In the Seattle area, the Director of Personnel and Labor Relations for Todd Pacific Shipyards, Seattle Division had arranged

for a lengthy and informative joint discussion with himself, three union apprentice training coordinators representing three trades, the Todd apprentice coordinator, and an experienced shipyard journeyman who coordinates apprentice activity within his skill area at Todd. This meeting was the lead-in to additional in-depth interviews with: (1) Todd and Lockheed Shipbuilding Company managers concerned with apprentice training, (2) union officials, and (3) the State of Washington's apprentice coordinator in the Seattle area.

In both the Norfolk and Seattle areas, virtually all interview questions were answered openly. In all cases, interviewers were treated courteously and for the most part everyone was enthusiastic about the goals of the evaluation project and gave freely of their time and knowledge. The key word for this project, contained in its title, is "cooperative." The cooperation that exists among the various organizations at each of the two geographical locations was the key variable examined and evaluated by the project team.

3. FINDINGS FOR THE NORFOLK AREA SHIPYARD HELPER PROGRAM

3.1 OVERVIEW

The Tidewater Maritime Training Institute located in Norfolk, Virginia, is a small federally funded school that trains disadvantaged youth as defined by the Federal Job Training Partnership Act (JTPA) of October 1982. With a small staff and using loaned facilities and training aids, it graduates approximately 30 ship repair helpers per quarter. The students receive an excellent hands-on exposure to a number of ship repair skills, such as welding, shipfitting, and painting. Emphasis is placed on: (1) the ship yard environment, (2) math, blueprints, and safety, and (3) motivation towards the "work ethic."

3.2 AREA DESCRIPTION

The Tidewater area and Hampton Roads, centered around Norfolk, Virginia, is the 31st largest Metropolitan Statistical Area in the United States. The major cities included in the area are Newport News (145,000), Hampton (123,000), Norfolk (267,000), Virginia Beach (262,000), Portsmouth (105,000), and Chesapeake (114,000). Maritime activities include shipbuilding, ship repair, and U.S. Navy home-porting and training. Import/export shipping is a major aspect of the area. Hampton Roads currently ranks 8th after New York City, Los Angeles, Long Beach, Oakland, Seattle, Baltimore, and Houston in total port tonnage for the United States.

There are three major shipyards in the Tidewater area: Newport News Shipbuilding and Drydock Company, owned by TENNECO; the Norfolk Naval Shipyard, Portsmouth, Virginia; and Norfolk Shipbuilding and Drydock Company (NORSHIPCO), Norfolk. Only NORSHIPCO and a number of smaller maritime yards are involved with the program. Virginia has right-to-work laws, and union influence in the ship repair business is minimal.

3.3 INCEPTION AND DEVELOPMENT

As early as 1972, an experienced Tidewater area ship repair executive who had started in the business as an apprentice recognized the need for the indoctrination, motivation, and safety of initial-entry personnel into the ship repair business. The need stemmed from the nature of ship repair work, which is primarily physical in nature and frequently conducted in adverse weather under less-than-optimum conditions with respect to access and safety.

In the middle 1970's, this executive attempted to marry federal funding with entry-level training for ship repair personnel, with very limited success.

In the late 1970's, with the advent of the Comprehensive Employment Training Act (CETA) and the associated Private Industry Councils (PICs) and Area Manpower Authorities (AMAs), this same executive undertook instituting cooperation among the local area's ship repair businesses. These consisted of one large company and approximately 13 smaller companies located within the AMA of Norfolk, Portsmouth, Virginia Beach, and Chesapeake. Primarily through this one person's efforts, the Tidewater Maritime Training Institute was incorporated as a nonprofit educational foundation in 1981. The Institute's members agreed to apply for federal funding of an entry-level training center for ship repair helpers under the CETA program. Appropriate application steps were undertaken with the local AMA, the South-eastern Tidewater Area Manpower Authority (STAMA).

Interest and cooperation among the ship repair companies, along with the appointment of a prospective executive director, led to the initial steps of:

- (1) defining the objectives and methodologies of a training center,
- (2) searching for a low-cost facility, and
- (3) laying out implementation plans with respect to curriculum, instructors, and training-aids acquisition.

The key executives of the 13 companies involved with the Institute met frequently. Initially, there was considerable difference of opinion with respect to options, such as whether to train a helper for a specific skill vs. exposure to several skills. There were also differences on length of training and annual student output.

Because of the small size of a number of the companies and the changing nature of the work load, it was decided that graduating a helper who could be initially placed in any of several skills provided the maximum flexibility to the greatest number of the companies. Also, it would increase the probability of hire upon graduation. This decision, in turn, determined the curriculum content and length. The capacity of the loaned training facilities and the estimated requirements for helpers dictated class size.

Thus, as a result of considerable energy and continuing enthusiasm on the part of several members of the Institute and the prospective director, the Training Center came into being in February, 1981. The first budget was \$320,000, which included \$87,000 for building renovation and initial equipment. These federal CETA funds were complemented by support "in kind" from the Institute, in the form of donated space and materials. The Institute's facility is a 20,000-square-foot, old brick building owned by one of the participating repair yards and is located in the geographic center of the Tidewater area's ship repair activity. The building is rented to the Training Center for \$1.00 per year.

While the total funding was CETA money, the requirement of industry participation "in kind" was fully supported and acted upon by the participating companies. Direct involvement exists in the form of:

- (1) yard executives meeting and talking to each class and attending their graduation,
- (2) foremen and supervisors regularly providing specialized instruction at the Training Center,
- (3) scheduling and conducting comprehensive shipyard tours for the students,

4) providing equipment and material for the Center, and

(5) providing transportation and other miscellaneous services upon request.

Such direct involvement has been and continues to be a major part of the program.

3.4 CURRENT PROGRAM

3.4.1 Legal Basis

The Tidewater Maritime Training Institute, which is incorporated as a nonprofit educational foundation, is organized for the purpose of operating a training facility for the ship repair industry in Tidewater, Virginia. The parent corporation is the South Tidewater Association of Ship Repairers, which incorporated from the informal trade association that initiated the Institute. The members of the Ship Repairers' Association currently consist of 42 companies and corporations that are directly or indirectly involved in area ship repair. There are separate boards of directors for the Ship Repairers' Association and the Tidewater Maritime Training Institute, but all directors are appointed from the associated companies and corporations.

3.4.2 Objective of the Training

The objective of the training course is to produce an individual who: (1) is motivated to learn and to work, (2) understands the rigors of the ship repair work environment, (3) is familiar with a number of ship repair skills and their associated tools and equipment, and (4) has had sufficient basic math, blueprint reading, and safety practice exposure to provide every opportunity for success in the ship repair industry.

3.4.3 The Federal Jobs Training Partnership Act

The Tidewater Maritime Training Institute sponsors the Training Center and annually applies for funds in accordance with the Federal Jobs Training and Partnership Act (JTPA). Funding until October, 1983, was under the CETA program.

The purpose of the JTPA is: "to establish programs to prepare youth and unskilled adults for entry into the labor force and to afford job training to those economically disadvantaged individuals and other individuals facing serious barriers to employment who are in special need of such training to obtain productive employment." (Quote from JTPA, Public Law 97-300, 29 U.S. Code 1501.)

- o Under JTPA, Congress appropriated around \$4 billion for FY83 and then apportioned it to the states using a population/unemployed-type criterion.
- o Each state is required to set up "service delivery areas" -- called Area Manpower Authorities (AMAs) in Virginia -- based on a similar criterion and a minimum size.
- o In FY83, Virginia received approximately \$30 million for 14 service delivery areas or AMAs.
- o The JTPA requires the state governor to have a state job training coordinating council to oversee the AMAs and recommend apportionment of funds each year.
- o The South Tidewater AMA (STAMA) is a special-purpose authority that is the grant recipient and administers the programs.
- o Each AMA (service delivery area) must have a private Industry Council and a Policy Council.

The Private Industry Council (PIC) by law must be composed of 51% local private businessmen plus representatives of educational agencies, organized labor, rehabilitation agencies, community-based organizations, economic development agencies, and public employment services.

- There are a total of 23 representatives on the Tidewater PIC. They are divided into various areas of interest relating to major job categories, i.e., construction, ship repair, automotive, other.
- The Policy Council members are the chief elected officials of the political entities in the service delivery area.

Proposal/approval/execution of the annual program under JTPA occurs as follows:

- STAMA submits a yearly budget proposal to the Governor's council.
- The Governor disburses funds to STAMA.
- STAMA advertises for proposals from local training activities.
- All proposals are reviewed and evaluated by STAMA.
- The PIC selects the programs to be funded.
- The Policy Council must concur in the PIC selections as part of the partnership.

"The primary consideration in selecting agencies or organizations (e.g., the Tidewater Maritime Training Institute) to deliver services within a service delivery area shall be the effectiveness of the agency or organization in delivering comparable or

related services based on demonstrated performance in terms of the likelihood of meeting performance goals, cost, quality of training and characteristics of participants." (PL 93-700, USC)

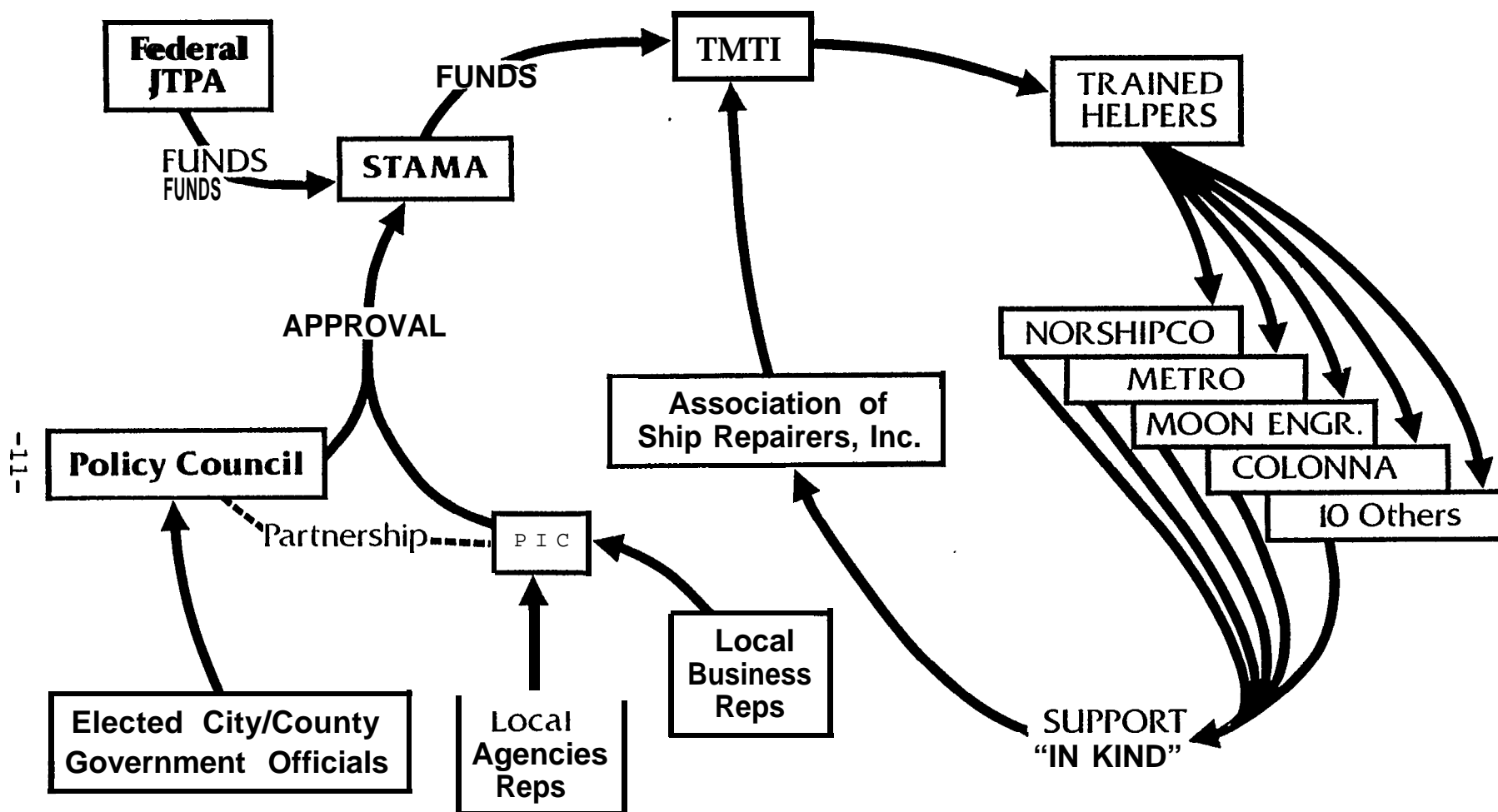
The performance goal referred to above is, of course, the hiring of graduates by industry. Last year the local PIC and STAMA received proposals from 40 different organizations for approximately 100 proposed training programs that aspired to funding under the JTPA.

Figure 1 depicts, in general terms, the major players in the Norfolk area and their relationships.

3.4.4 Funding and Finance

The funding of the Training Center has been exclusively Federal funds since inception. From inception to 1 October 1983, these were CETA funds, and are now JTPA funds.

Table 1 shows the Norfolk program funding by fiscal year. The amounts shown in the right-hand column represent each year's budget, plus allowances for salaries. The initial fiscal year's funding (1981) included \$87,000 for building renovation and initial equipment installation. A line item budget for FY 1981 and 1982 is contained on page A-1 of Appendix A. According to the Director, the current funding of the Training Center represents an average cost of \$2160 per student. Comparisons with other JTPA programs per student cost are not feasible, since the range is from \$400 to \$3500 per student and depends upon length and sophistication of the training program.



PIC Private Industry Council
 TMTI Tidewater Maritime Training Institute
 JTPA jobs Training Partnership Act
 STAMA Southeast Tidewater Area Manpower Authority

Figure 1. Norfolk Area Major Players

Table 1. Norfolk Program Funding

<u>Fiscal Year</u>	<u>Amount</u>
2-1-81 to 9-30-81 (FY81 8 mo.)	\$324,000
10-1-81 to 9-30-82 (FY82)	\$300,000
10-1-82 to 9-30-83 (FY83)	\$269,000
10-1-83 to 6-30-84 (FY84 9 mo.)	\$205,000
7-1-84 to 6-30-85 (FY85)	\$297,000 approximately

Until 1 October 1983, the funding provided for hourly minimum wage payments to students under CETA. After 1 October 1983, under the JTPA, only a stipend amounting to approximately \$3 a day per student for lunch and transportation expense has been provided.

The budgeting (proposal), funding, and expenditure process has been and continues to be very formal and well controlled. After JTPA funds are allocated by STAMA, the appointed Board of Directors of the Tidewater Maritime Training Institute exercise close review and approval authority over purchases. Normally all checks for approved purchases are signed by two officers of the Board of Directors. In an emergency, the executive director can be one of the two check-signers.

Financial support "in kind" is provided by the members of the Ship Repairers' Association in a number of ways. This support takes the following forms:

- (1) Providing a building essentially rent free to the Institute.
- (2) Providing surplus equipments and tools.
- (3) Providing training material, such as pipe, welding rods, scrap metal, wood, etc., for use by students.

- (4) Assigning supervisors/foremen in the various trades to provide lectures and practical demonstrations and/or to oversee student hands-on work on a scheduled basis which conforms to the school's course schedule.
- (5) Permitting and assisting organized tours of the repair yards by the students.
- (6) The shipyard owners and senior executives have met the incoming class and given them pep talks. They have attended graduations and also made real efforts to hire all graduates.

3.4.5 Organization

The Training Center staff consists of an executive director, who also instructs, three instructors, who perform numerous other functions, and an administrative assistant. One instructor has considerable formal education in curriculum development and technical instruction and is therefore tasked to oversee curriculum revision and improvement. The Center is currently organized to administer four 12-week courses per year with approximately 30 students per course. Each course is organized around nine segments having to do with basic skills used in ship repair. These skills are: Painting, Pipefitting, Shipfitting, Electrical, Machinery, Burning, Welding, Sandblasting, and Fiberglass Repair.

The Training Center's executive director and his staff are very active in interfacing with the local shipyards of the Institute and its Board of Directors. Changes and/or modifications to agreed upon policy and all purchasing are done with the involvement and concurrence of the Board. Scheduled visits to the shipyards by students and instructors, coupled with frequent

visits to the Training Center by shipyard foremen and supervisors , serve to maintain close organizational cooperation between the shipyards and the Institute.

The day-to-day organization of the school revolves around careful scheduling of the student groups with respect to the installed training equipment and aids in order to ensure maximum hands-on time for each student in each skill area.

3.4.6 Facilities

To provide a suitable training facility, one of the associated ship repairers agreed to rent an abandoned shipyard building to the Center for \$1 a year. The Center spent \$87,000 to renovate the building--fixing up the shop areas, creating a classroom, and adding separate washroom facilities for men and women.

The Training Center--formerly the Old Dominion Marine Repair Shipyard--is located on the Elizabeth River in the Berkley section of Norfolk. This area is near the center of the area's private shipyards, most of which are within a three-mile radius.

The total area of the leased property is 21,900 square feet, which includes a 20,000-square-foot ship repair building divided into work areas for various shipyard trades. Also included are classroom space, office space, a tool room, conference room, and separate lockerroom facilities for men and women.

The workshop areas include equipment and space for hands-on training in welding, electric and pneumatic hand-tool operation, prefabrication of pipe, structural and electrical layouts, burning, overhaul of small machinery, and painting. Ample work areas outside of the building allow the students to work on large pieces of production equipment. An inventory listing of all equipment used in the facility along with a separate listing of all the materials used in the instructional process are provided

on pages A-2 through A-5 of Appendix A. Upon enrollment each student is issued safety equipment and a tool box for which he is accountable. The listing of the safety equipment and the contents of the tool box is contained on pages A-6 and A-7 of Appendix A.

Each class is assigned a work project that enhances the facilities. These efforts have significantly improved the facility over time and have provided more diversified types of ship experience to the students. Figure 2 is a picture of the tool box rack constructed by class #3.



Figure 3 is the layout of the facility which is to be returned to the owner next year (1985). plans are already in progress to provide a suitable relocation of the Training Center.

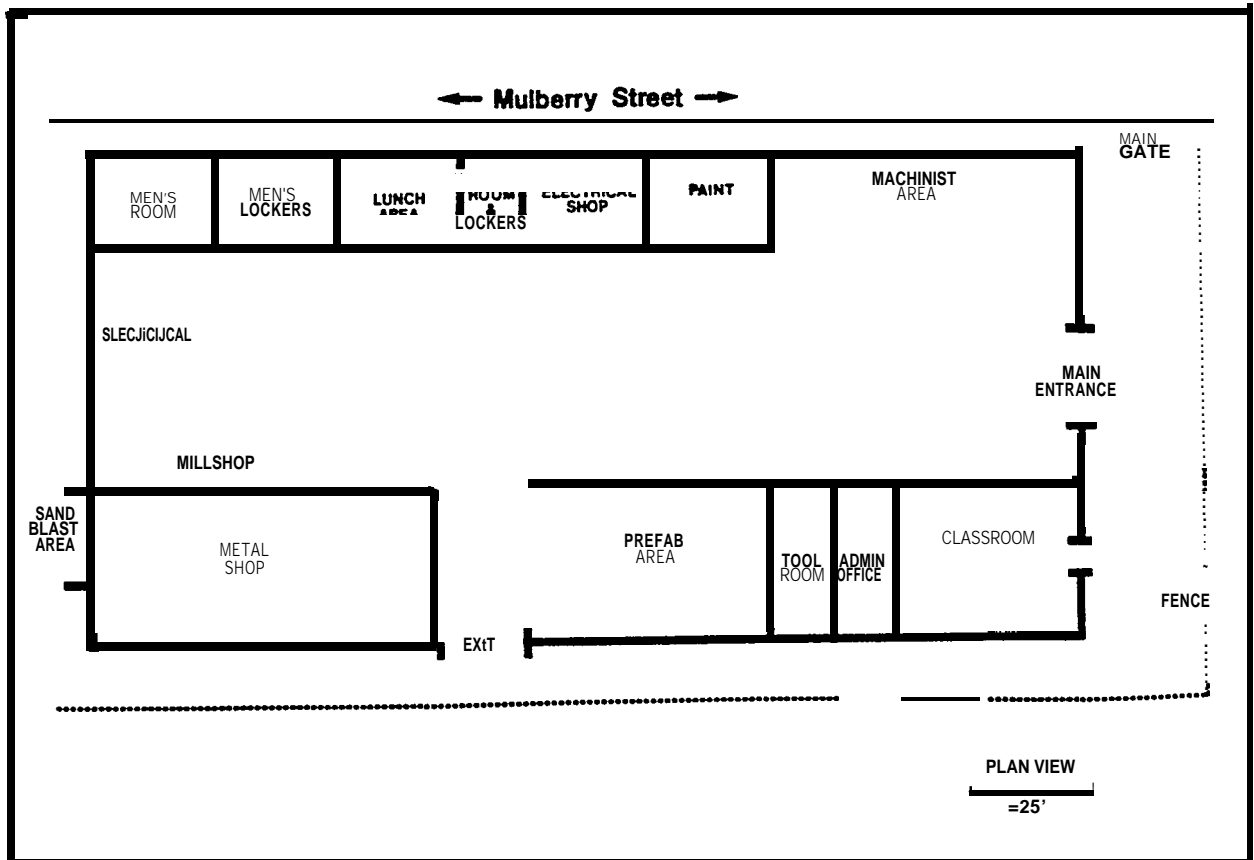


Figure 3. Training Center Layout

3.4.7 Recruitment, Assessment, and Selection

The process of recruiting and selecting students for the training course has remained virtually the same for all 14 classes to date, despite the change in Federal law from CETA to JTPA. Under CETA a minimum wage was offered, while under JTPA only a transportation and lunch stipend is available.

The student selection process begins with required public advertising which sets the time and place for applicants to appear for an interview. A COpy of the advertisement is shown on page A-8 of Appendix A.

The number of initial applicants for each new class has ranged from a high of 350 to a recent low of 200. Each new class normally has an allowed enrollment of 30 students. The executive director and his staff take applications and interview all applicants. In their initial screening, they look for applicants who: (1) can meet the JTPA criteria leading to a certification that they are economically disadvantaged and (2) have the potential and desire to learn. Normally this initial screen results in sending approximately 100 candidates to the Southeastern Tidewater Area Manpower Authority (STAMA) for interview and determination of eligibility for JTPA funds.

The second screening of those certified as eligible for JTPA training usually results in a narrowing to about 60 candidates. This group is then tested using the California Achievement Test to determine their approximate reading and math grade level. Final selection of the 30 enrollees is based on reading grade level test results and a third interview to include an evaluation of the whole person. Sixth grade and below reading levels have difficulty with the course. All selected candidates are required to have physical exams prior to course attendance. The director is the final judge of candidates and in making final selections carefully weighs: (1) prior interview opinions, (2) test scores, (3) affirmative action, and (4) motivation/aptitude. The runners-up are used to fill any early attrition for whatever reason. To date there have been no complaints or challenges to the candidate selection system either by candidates or others.

3.4.8 Curricula and Instruction

The three-month formal course of study is organized into an eight-hour day, five days a week for twelve weeks. The morning session each day is utilized for classroom activity. Included are instructor-planned lectures aimed at related and needed information encompassing the nine trade areas, safety and shipyard practices, and employment-related information.

Guest speakers from the shipyards, including personnel department representatives, corporate executives, and journeymen workers, periodically speak to the students. The afternoons are devoted to shipwork practice in each of the nine trade areas. Page A-9 of Appendix A is a sample weekly course schedule. Figure 4 shows the welding instructional area.

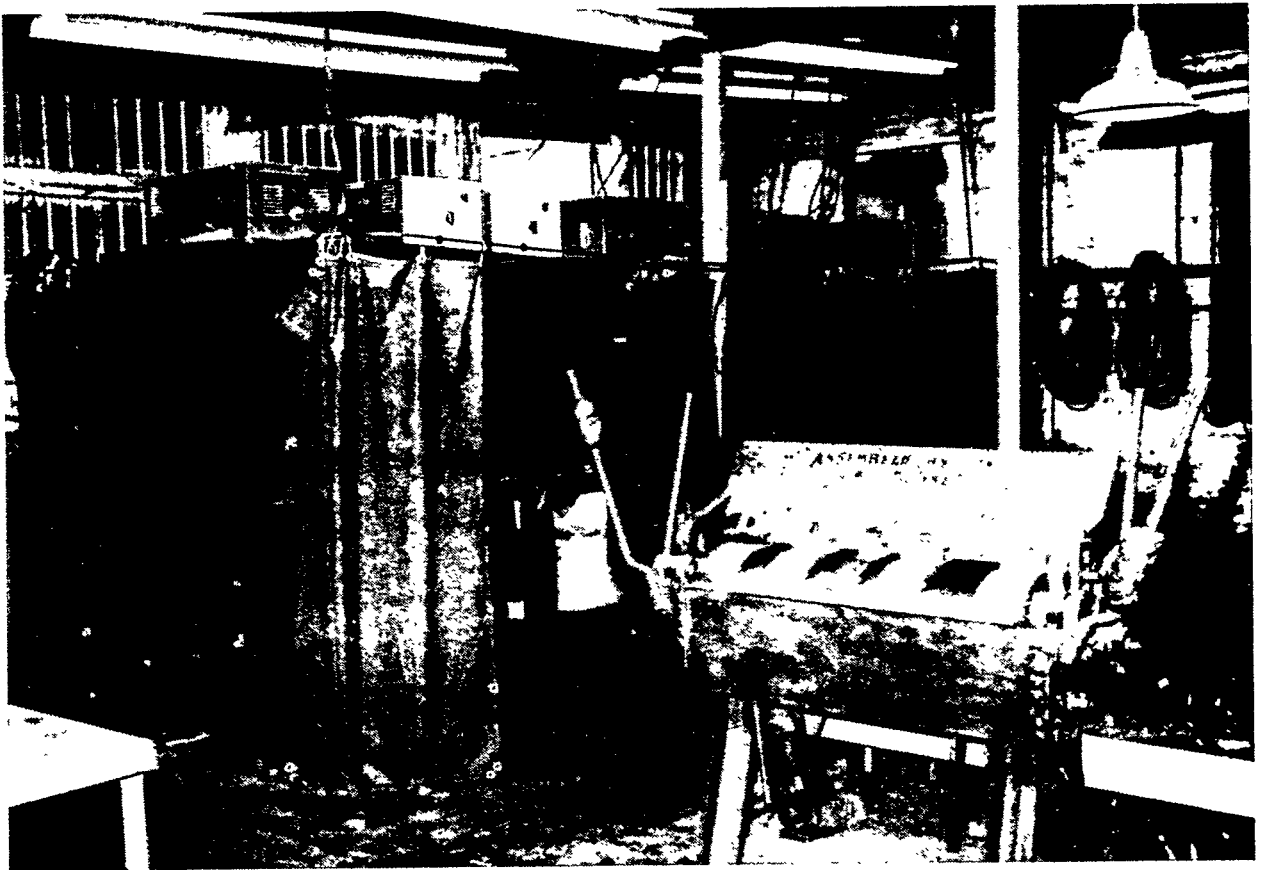


Figure 4. Welding Area

Lesson plans for the formal instruction have undergone one major revision since inception. The number of hours devoted to each subject area is shown in table 2.

Table 2. Training Center Curriculum

<u>Subject</u>	<u>Hours</u>
Shop Orientation (Purposes, scope, work of other shop, etc.)	9
Motivational Training (Work ethic, socialization, etc.)	8
Introduction to Hand Tools (hand tools, electric and pneumatic)	38
Material Identification (pipes, shapes & plates, nuts bolts, etc.)	12
Ship Terms (glossary of ship terms)	6
Ship Layout (Compts System, etc.)	14
Safety (personnel, fire, entering spaces, basic rigging, first aid)	32
Shop Math (Basic needs for job entry)	36
Blueprint Reading Introduction (scale, outline, etc.)	18
Basic Painting (preparation, various types paint)	8
Basic Introduction to Pipefitter Helper	16
Basic Introduction to Shipfitter Helper	16
Basic Introduction to Electrician's Helper	18
Basic Introduction to Machinist Helper	18
Basic Introduction to Burning and Welder's Helper	24
Basic Introduction to Sandblasting Helper	5
Basic Introduction to Fiberglass Repairs	6
Practical Projects; Hands on Projects; Hands on Work	<u>196</u>
Total Hours	480

Figure 5 shows the motor and pump work area.



Figure 5. Motor and Pump Work Area

The percentage division for the course by major areas of instruction is as follows:

Orientation, Motivation, and Introduction	10%
Instruction in safety, math, blueprints, and tools	26%
Instruction in specific skill areas	23%
Actual hands-on skill areas	41%

Instructor qualifications have been and are an important part of the Norfolk area program. The Ship Repairers' Association, the Institute's executive director, and the present instructors all agree that instructors should have, at a minimum, the following background credentials:

- (1) Some management/supervisory experience and a developed skill in leading and motivating.
- (2) Expertise in one shipyard skill but with enough background and experience to be knowledgeable in several related skills.
- (3) Actual work experience in the ship repair industry.
- (4) Some experience as an instructor.
- (5) Empathy for the attitudes and feelings of disadvantaged youth.

Data obtained from student interviews indicate that from a student perspective, the instructors take a very active interest in both the academic programs and wellbeing of the student with respect to ability to survive during and after the completion of the course.

Students are evaluated both on written test results and on practical shop work. Feedback provided indicates a very fair and

effective evaluation system. The Training Center maintains a high degree of formality in announcement of purpose of the school and in graduation ceremonies and awarding of certificates. This, of course, has an effect on student motivation. Samples of the current resolution and graduation completion report are as shown on pages A-10 and A-11 of Appendix A. Figure 6 shows the City Manager of Portsmouth, Va. delivering the graduation talk to class #14.



Figure 6. Graduation

3.4.9 Hiring and Retention

Hiring rates for graduates of the 14 classes to date have ranged from a high of 100% to a low of 75%. Job placement in shipyard-related jobs has been over 90%. Approximately 249 of the 381 total graduates are still working in a shipyard-related job.

The STAMA organization indicates that this is both exemplary and possibly the only such program to achieve this record. Student completers are aware of the need to excel on the job in order to remain employed. According to local industry personnel, student completers display very fine work attributes and behaviors. They attribute this, at least in part, to their completion of the Training Center yard helper program.

The executive director of the Training Center devotes significant time and energy in placing graduates, keeping track of them, and following up to ensure **reemployment** if necessary. The JTPA only requires STAMA to keep employment retention records on individuals for six months. The school employs a post-card request system to follow up on graduates. Because of the relatively small numbers and the personal involvement of the director, the graduates go back to the Training Center whenever they need help in job placement. The following table 3 reflects the results for the past year.

Table 3. Tidewater Maritime Training Center Job Placement Data

M. T. C. CLASS #	DATE STARTED DATE GRADUATED	TOTAL NUMBER OF GRADUATES	TOTAL SHIPYARD JOB PLACEMENTS	JOB PLACEMENT RATE	JOB PLACEMENT RETENTION 10/1/84	RETENTION RATE
11	10/1/83 12/23/83	29	28	96%	22	78%
12	1/3/84 3/23/84	33	30	91%	24	80%
14*	4/2/84 6/22/84	31	30	96%	25	83%
15	7/2/84 9/21/84	31	29	93%	26	89%
*No 13th Class						

3.5 CONCLUSIONS (NORFOLK GEOGRAPHICAL AREA)

- (1) The local shipyard industry executives actively support the Norfolk cooperative training program. The Presidents, CEOs, and senior managers of the 13 companies involved are very pleased for three reasons. One, they are in fact very much involved in the process of producing an independent citizen with pride in his work, Vs. someone who might remain disadvantaged and off the tax roles. Two, they believe, along with the PIC and STAMA, that they are overseeing the use of Federal monies in a very productive manner. And, three, virtually all of them are both pleased and somewhat surprised at the carryover, from the initial cooperation to set up a training center, to increased cooperation in other areas of business.

Prior to the efforts to establish the Training Center and the incorporation of the Ship Repairers' Association, the companies had little or no contact with each other. After incorporation and startup of the Training Center, the companies have discovered that closer cooperation for business purposes can be of value to all. An example of cooperation was related by an executive in one of the smaller companies. His firm was bidding on a ship repair job without a deep enough draft alongside its pier to accommodate the prospective ship. A neighbor company offered to loan/rent him a deep-water berth if he obtained the contract. In return, when the neighbor firm needed parking for a major effort, the executive would supply it.

- (2) The Private Industry Council (PIC) and the Southeastern Tidewater Area Manpower Authority (STAMA), charged with proper disbursement of Federal funds, are very pleased

with the results of this program. The Training Center comes close to a perfect score in terms of meeting the JTPA criteria for a training program. The program has an excellent hire rate (performance goal), low cost, and quality training.

(3) The Norfolk area cooperative program is effectively operated and implemented. The executive director of the Institute and his instructors know that they are performing a worthwhile task in terms of instruction, counseling, and motivation. The measure of program effectiveness for a training program is its ability to prepare a job-ready trainee. This program has achieved that goal to a remarkable level. It has done it at a very reasonable cost per trainee. Moreover, in doing so it has created a most desirable atmosphere for inter-company cooperation and communication. In the estimation of those closely associated with this program and other programs similar in nature, the Tidewater Maritime Training Institute's program appears to be a very successful cooperative training program.

(4) Students accepted into the program have high course completion and job placement rates. Current students and graduates speak essentially with one voice. They spoke of appreciation for: (1) the opportunity, (2) the efforts of the instructors to teach both skills and attitude, and (3) pride in their own accomplishments.

(5) There are a number of influences within the Norfolk geographical area that contribute to the success of the Training Center. Among the most significant are:

- a. A large amount of ship repair business, both from the U.S. Navy and commercial customers, which has been either steady or increasing in recent years.

- b. Management has virtually a free hand in the hiring, promotion, and wage policy areas.
 - c. Because Tidewater is a large maritime center, the ship repair industry exercises significant influence in the Private Industry Council (PIC) in terms of ensuring that the training of shipyard workers receives adequate priority under JTPA.
 - d. The general economic health of the area increases the assurance of hire for well-trained helpers in basic trade skills.
- (6) At the outset, there were several major factors that preceded implementation and success of the program.
These included:
- a. Initially, an organizer among the shipyard executives who was the catalyst for the program.
 - b. The senior executives of the involved companies actually debating and deciding on what type training they needed.
 - c. The selection of an energetic, highly experienced and competent person as initial executive director for the Training Center.
 - d. Submission of a proposal to the STAMA for funding of the program under CETA/JTPA federal funds.
 - e. The support and cooperation of the involved companies to ensure continued success of the Training Center, such as through support "in kind."

3.6 RECOMMENDATIONS

Other geographical areas considering cooperative maritime training programs should:

- (1) Determine the availability and appropriateness of JTPA funds for maritime training.
- (2) Identify a method of organizing the local shipyard industry for the purpose of establishing cooperative training (e.g., an association, a non-profit educational foundation, etc.).
- (3) Determine the nature of "in kind" support that the local maritime industry can furnish to a cooperative program.
- (4) Contact the Director, TMTI, if other specific information is needed on the Norfolk area program.

4. FINDINGS FOR THE SEATTLE AREA MULTI-SHIPYARD COOPERATIVE APPRENTICE TRAINING PROGRAM

4.1 OVERVIEW

Cooperation, for apprentice training, among labor (unions), the State of Washington, and the ship construction and repair industry in the Seattle area has existed for a number of years. It is pointed towards ensuring that: (1) the apprentice receives a well-rounded technical exposure with as much additional training as feasible, and (2) the apprenticeship be completed if at all possible.

The degree of cooperation for apprentice training is and has been directly related to the level of economic activity in the area and, in particular the new construction level at Todd Pacific Shipyards, Seattle Division, and Lockheed Shipbuilding Company.

The current economic circumstances in the Seattle area essentially preclude any new apprentice training and, in fact, have recently forced Lockheed to terminate its ongoing program of approximately 28 apprentices.

4.2 AREA DESCRIPTION

The metropolitan area of Seattle is approximately 60 square miles and contains a population of around 500,000. It has a fine protected harbor, Elliott Bay, with numerous piers and docks which can accommodate up to about 75 ocean-going vessels. The city is important for shipments of fir, red cedar, and canned salmon.

The largest and most important industries are aerospace (Boeing), shipyards, foundries, electronics, marine science, and the processing of food and forest products. The University of Washington (35,000 students) is located in the city.

There are three major shipyards within the city and a number of smaller repair yards. The three major yards are (1) Lockheed Shipbuilding Company (a Division of the Lockheed Corporation), (2) Marine Power and Equipment Co., Inc. and (3) the Seattle Division of Todd Pacific Shipyards Corp.

4.3 INCEPTION, DEVELOPMENT, AND AUTHORITY FOR THE PROGRAM

Shortly after the Federal Apprenticeship Act was passed during World War II, the State of Washington followed with its own Apprenticeship and Training Act, which closely paralleled the U.S. Act.

Under Washington State's Department of Labor and Industries is an Apprenticeship and Training Council (hereafter referred to as the Council), with a State Director for Apprenticeship who is also the Secretary of the Council. The Council is a high-level state

organization with (1) employer and employee members, (2) public members, and (3) State Vocational and Employment Security representation. The administrative arm of the Council is the Apprenticeship and Training Division of the Department of Labor and Industries, which has field supervisors and apprenticeship coordinators in all of the State's counties and larger cities. Rules and regulations for the operation of the Council are extensive and up to date.

The Council holds well-attended quarterly meetings in a different geographical area of the state each time. The meetings: (1) consider new and revised standards of apprenticeship, (2) make Apprenticeship Committee member revisions, (3) cancel standards, (4) approve new plant programs, and (5) acknowledge meritorious service of persons involved in apprenticeship programs.

For example, at a recent meeting in July, 1984, the Council: (1) examined five sets of new standards, (2) considered revisions of 28 different standards, (3) approved personnel revisions to 23 apprenticeship committees, (4) cancelled nine standards, (5) examined proposals for 12 new plant programs, and (6) cited two persons for meritorious performance.

The rules and regulations of the Council clearly prescribe that the principal functions of the Council are to approve and register both apprentices and the apprenticeship and training agreements. These training agreements take the form of "Standards of Apprenticeship," a document which:

- a. Identifies the skill occupation for either an apprentice or trainee.
- b. Identifies the sponsorship of the program. The sponsor can be the committee called out in the standard itself or a particular plant.

Identifies the geographic area to which the standards apply; i. e., there can be different sponsors and different standards for the marine electrical workers in Seattle as opposed to Tacoma.

forth the composition and general rules for the
see which will administer the program (labor and

As standards with respect to recruiting, selecting, moving, grievance, etc.

fies: (1) the length of the program in hours, (2)
layment of the required work process by year and
of required hours in general terms, and (3)
required specific related/supplemental education.

or union desiring to institute an apprenticeship
first propose its standards and committee members to the
approval and registration before implementation.

apprenticeship committees are not state agencies but rather
to entities performing services jointly for management
These services are primarily the supervision of the
operation of a particular apprenticeship program. The
is required to monitor the progress of the apprentice,
filed records on his progress, and ensure that his
is in accordance with the agreement.

There were approximately 10,000 persons in all types of
apprenticeship/trainee programs in the State, as opposed to about
only.

craft unions involved in shipbuilding and repair
Seattle area. Some crafts have no apprentice pro-
grams (e.g., Sheet Metal and Painters) have trainee

programs which are normally two-year programs that are less extensive than a full apprentice program. Table 4 presents an overview of marine apprentice and trainee programs in Seattle. To better understand all the relationships, detailed descriptions of the Boilermakers Apprentice Program and the Marine Electricians Apprentice Program follow.

4.4 BOILERMAKERS

4.4.1 Legal Basis

All actions regarding apprentices and apprenticeships are governed by:

- (1) the Master Agreement between the local shipbuilding and ship repair yards and the West Coast AFL-CIO Metal Trades Union,
- (2) the State of Washington's rules and regulations regarding apprenticeship, and
- (3) the state-approved agreement between union and management for a Joint Apprenticeship and Training Committee (JATC) to run the program. The agreement is called "Standards of Apprenticeship."

The Seattle Boilermakers Standards of Apprenticeship was first initiated in 1947 and last amended in February, 1982. It calls for a JATC composed of four employer representatives and four union representatives. The committee appoints a training director/coordinator. Legally all boilermaker apprentices working in the Seattle area are indentured to the JATC for a total of three years (6000 hours).

Table 4. Marine Apprentice/Trainee Programs in Seattle Area

TRADE/SKILL	Apprentice Program	Trainee Program	Trust Fund	Sponsor*	Length (hrs)	Related Supplemental Instruction hrs/yr.	Note
Boilermakers	Yes	No	Yes	JATC**	6000	164	Provides rigging instruction
Carpenters	Yes	No	Yes	JATC	8000	144	Shipwrights & Boatbuilders
Electricians	Yes	No	Yes	JATC	6000	225	
Machinists	Yes	Yes	Yes	JATC	6000-A 4000-T	144	Inside & Outside Apprentice Outside Trainee
Painters	No	Yes	Yes	JATC	4000	144	
Sheet Metal Workers	No	Yes	Yes	JATC	4000	144	
Pipefitters	No	No	No	No	NA	NA	No marine program. Part of Plumbers standards.
Laborers, Operating Engineers, Teamsters, Shipscalers	No	No	No	No	NA	NA	No Program

* The Organization to whom the apprentice or trainee is indentured.

** **Joint Union/Management** Apprentice Training Committee.

4.4.2 Objective

The objective of the apprentice program is to produce journeyman boilermakers who can perform layout, work the metal as required, and weld, burn, rig, fit, fabricate, and test all shapes and sizes of metal containers from railroad cars to ships. Because the boilermakers in Seattle work in either a shipyard, an uptown shop, or a car foundry, there are some variations in the work items and number of hours required for each (i.e., the shipyard apprentice does less welding and more fitting than the uptown shop or car foundry apprentice).

4.4.3 Organization

The key organization for all aspects of apprenticeship is the sponsor specified in the Standards of Apprenticeship document. In some cases, the sponsor is a plant or firm. For the boilermakers, the sponsor is the Joint Apprentice and Training Conunittee (JATC) that is called out by name in the Standards document.

The key organizational person for apprentices is the appointed training coordinator who acts for the JATC to monitor and supervise each individual apprentice. In the case of the boilermakers, the same individual acts as both apprentice training coordinator and training director of the local union's Boilermakers School.

Figure 7 depicts the apprentice in relationship to the State, the union, his employer, the school, the trust fund, and the JTAC to which he is indentured.

4.4.4 Funding and Finances

The primary source of funds is the employers. In accordance with the master agreement between the shipbuilding and ship repair firms and the West Coast AFL-CIO Metal Trades Union, the

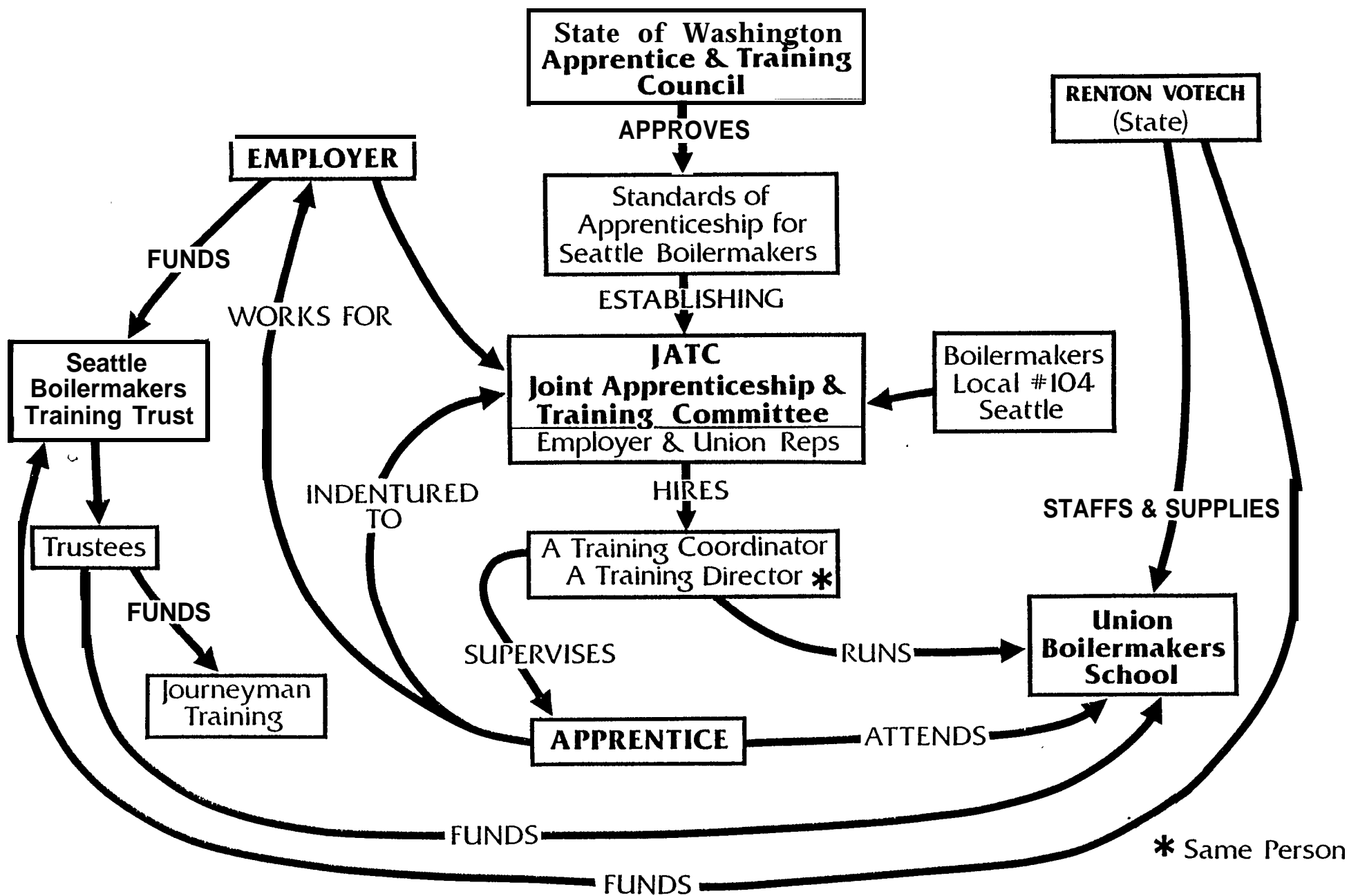


Figure 7. Major Players in Boilermakers Apprentice Training

employers set aside three cents (\$.03) for each hour worked by employees covered under the agreement. These monies go first to a Northwest Metal Craft Trust Account and then to specific trust accounts for each trade.

The Bob Shannan (Seattle Boilermakers Local 104) Puget Sound Employers Boilermakers Apprenticeship and Training Fund was formed as a trust, effective December 5, 1974. It commenced operations on February 24, 1975, concurrent with the receipt of the assets and the assumption of the liabilities of a predecessor trust fund. The sole purpose of the trust fund is to provide training facilities and programs designed to train and educate apprentices and trainees, including journeymen upgrading, in the skills of the boilermaker and related crafts.

For the years ending 30 June 1982 and 1983, the employer's contribution to this fund was \$96,000 and \$91,001 respectively. Trust expenses exceeded income by \$32,000 in 1982 and \$29,000 in 1983.

A local vocational-technical institute (Renton VoTech) teaches courses at the Boilermakers School and collects tuition from the courses. The vocational-technical institute reimburses the Trust Fund for a portion of the school's rental facilities expense. This was approximately \$16,000 in both 1982 and 1983.

Wages are paid to apprentices by the firms or companies employing them. Apprentice boilermakers are paid at the following rates:

1st 1000 hrs.	- 70% of Journeyman rate*
2nd 1000 hrs.	- 75% of Journeyman rate
3rd 1000 hrs.	- 80% of Journeyman rate
4th 1000 hrs.	- 85% of Journeyman rate
5th 1000 hrs.	- 90% of Journeyman rate
6th 1000 hrs.	- 95% of Journeyman rate

* Current journeyman rate is approximately \$13.50/hr.

4.4.5 Facilities

Facilities used to train boilermaker apprentices include his place of work, the Boilermakers School, and local vocational-technical institute/community college.

The Boilermakers School is attached to the local union headquarters and consists of several classrooms, eight oxy-acetylene welding and burning stations, six arc welding stations, and facilities for teaching rigging, shipfitting, lofting, etc.

4.4.6 Recruitment and Selection

The state prescribes detailed rules that mandate appropriate actions to ensure that recruitment, selection, employment, and training are nondiscriminatory. This, in turn, requires wide dissemination of minimum qualifications for application to an apprentice program along with instructions regarding the time and place to apply.

Applicants must apply directly to the Seattle Boilermakers JATC. If they meet the minimum age of 18, are high school graduates or equivalent, and their school grades indicate ability to meet the requirements of the trade, they are then given an aptitude test. If they score high enough on the aptitude test, then they are interviewed by the JATC members.

If accepted as a candidate, the applicant is placed on the pool availability list in order as ranked by the JATC. Employers requiring apprentices are offered names in accordance with the priority listing in the pool.

The process does not preclude an employer from identifying persons they desire to apprentice and presenting them to the JATC for indenturing.

4.4.7 Work and School Requirements

- a. Work Requirements. For an apprentice boilermaker working in a shipyard, the Standards of Apprenticeship for the Seattle Boilermakers specifies the following breakout for his three years of apprenticeship.

	<u>Hours</u>
(1) Shearing, punching, crimping, rolling & brake -----	300
(2) Drilling, reaming, chipping, riveting, huckbolting, talking -----	320
(3) Welding -----	400
(4) Grinding -----	40
(5) Burning -----	220
(6) Rigging -----	150
(7) Lofting & ship layout, duplicating ----	1000
(8) Testing -----	50
(9) Fabrication (fitting) -----	<u>3520</u>
Total	6000

- b. School Requirements. State standards require that each apprentice enroll in and attend classes in subjects related to the specific trade, as approved by the State Commission for Vocational Education, for a minimum of 144 hours per year. For the Seattle Boilermakers, the requirements specified in the "Standards" are:

- (1) Supervised field trips.
- (2) Approved training seminars.
- (3) Six 11-week courses of 66 hours each relating to the trade (396 hours).
- (4) Completion of 88 hours of welding instruction prior to the end of 4000 hours of apprenticeship.

The six 11-week courses and the welding instruction are all conducted at the Boilermakers School adjacent to the union local

headquarters. Instructors and basic supplies are provided by Renton Vocational-Technical Institute, which is state supported. The six required courses are listed in table 5. The following shows the number of boilermaker graduate apprentices in the Seattle area for the past eight years.

<u>YEAR</u>	<u>MARINE</u>	<u>TOTAL SEATTLE AREA</u>
84	4	4
83	5	5
82	11	11
81	13	13
80	5	9
79	2	4
78	0	0
<u>77</u>	14	<u>19</u>
TOTAL	54	65

4.5 MARINE ELECTRICIANS

4.5.1 Legal Basis

For marine electricians in the Seattle area the Standards of Apprenticeship agreement (approved April 15, 1982) calls for 6000 hours of apprenticeship with the apprentice indentured to the Seattle Electrical Workers Apprenticeship Committee. This agreement is the same as the boilermakers' except that there are only three employer and three employee representatives on the committee, vs. four each for the boilermakers. There is also a training trust fund for marine electricians that is constituted the same as the boilermakers'.

4.5.2 Objective

The objective of the apprentice program is to produce a journey-man electrician who is skilled in installation or repair of all

Table 5. Apprenticeship Training & Journeyman Upgrading -
Shop/Marine Blueprint & Layout Classes

<u>BASIC I</u>	
<p>BLUEPRINT READING FOR BEGINNERS Men/Wed 6 P.M. - 9 P.M. Starts September 17, 1984 (11 weeks) Instructor: Cliff Groves</p>	<ul style="list-style-type: none"> -Basic Lines & Views -Visualization of Length, Height, Depth, etc. -Orthographic Drawing -Symbols & Abbreviations -Terminology & Nomenclature -Shop Math & Blueprint exercises
<u>BASIC II</u>	
<p>BLUEPRINT READING FOR BEGINNERS WITH SOME TRADE BACKGROUND Tue/Thur 6 P.M. - 9 P.M. Starts September 18, 1984 (11 weeks) Instructor: Larry Couch</p>	<ul style="list-style-type: none"> -Continuation of Basic I -Brief Review of Lines & Views -Basic Template Making -The Brake & Rolls, other shop & yard tools & equipment -Bend allowances, circumferences -Structural frames, Ship foundations
<u>INTERMEDIATE I & II</u>	
<p>MOSTLY LAYOUT STARTING WITH PIPE DEVELOPMENT Tue/Thur 6 P.M. - 9 P.M. Starts September 18, 1984 (11 weeks) Instructor: Walt Rasmussen</p>	<ul style="list-style-type: none"> -Layout tools and their use -Template making -Geometric terms -Geometric constructions -Parallel line development -Radial line development -Triangulation
<u>ADVANCED I & II</u>	
<p>TRADE MATH AND MORE COMPLEX LAYOUT Men/Wed 6 P.M. - 10 P.M. Starts September 17, 1984 (11 weeks) Instructor: George VanSickle</p>	<ul style="list-style-type: none"> -Math & trigonometry -Functions of Arcs & Angles -Steel Sq. familiarity & expertise -More parallel line, radial line and triangulation -Transitions of hoppers, chutes & other difficult shapes -Introduction to Boilers and tube layout

electrical systems, power, lighting, intercommunications, etc., on new construction and existing ships being repaired.

4.5.3 Organization

The Seattle Electrical Workers (Local 46) Joint Apprenticeship Committee has jurisdiction over nine separate electrical trades in the Seattle area. Each trade requires a separate Standards of Apprenticeship agreement between union and employers. As with the boilermakers there is an apprenticeship coordinator; however, the electrical coordinator supervises apprentices for all nine electrical trades vs. just marine electrician apprentices.

4.5.4 Funding and Finances

The JATC administers a training trust fund similar to the one for boilermakers. However, the Committee declined to provide any details regarding revenues and expenditures. The JATC did indicate that all apprentices are required to pay their tuition initially and are refunded from the Trust Fund upon successful completion of the course.

4.5.5 Facilities

The union makes extensive use of Renton Vocational-Technical Institute and North Seattle Community College to provide the required related/supplemental formal instruction.

4.5.6 Recruitment and Selection

Applicants apply at the union hall for one or any of the nine skills that offer electrical apprenticeships.

The minimums for the program are: (1) age 18-29, (2) high school graduate or equivalent, (3) passing grade in algebra and geometry

or equivalent, (4) high school transcript, and (5) satisfactory results of a recent physical examination.

If the minimums are met, the applicant is directed to take an aptitude test which is graded either high, medium, or low (exact criteria not obtained). If he/she scores high or medium, the JTAC will interview, evaluate, and score the candidate. An overall score of 70 or greater places the candidate on the eligibility list for hire as an apprentice for one year. At the end of the year, reapplication is required.

4.5.7 Work and School Requirements

- a. Work Requirements. The state-approved standards specify the general areas in which the marine electrician apprentice is to work. The "standards" are as follows:

(1) <u>First Year</u>	
(a) <u>Electric shop</u>	300
o Use blueprints to construct electrical foundations	
o Use vertical and horizontal power bandsaws	
o Use various grinders and shapers	
o Use power drills	
o Use power punches and other specialized power equipment	
o Learn foundations and particular problems involved in constructing them	
o Learn repair of electrical boxes	
(b) <u>Material runner</u>	300
o Process and understand material paperwork	
o Learn and work on material requirements for ship areas	
o Learn material parts, names, symbol numbers, etc.	
o Learn and maintain material flow	
o Learn proper handling and care of electrical material	
(c) <u>TLI (Ship ways)</u>	350
o Know proper tank indicator placement and be able to install one	
o Know location and kinds of ship tanks	
o Layout and install wireways to TLI's	
o Work with welders installing brackets, wireways, etc.	
o Learn basic ship construction techniques	
(d) <u>Main wireways</u>	350
o Learn to read blueprints ● abbreviations, symbols, etc.	
o Layout wireways by working from drawings	
o Weld wireways working from prints and using proper materials	
o Lay out and install transits, tubes, and collars from prints	
(e) <u>Cable crew</u>	350
o Learn proper method to pull ship's cable; know radius, break-outs, etc.	
o Learn ship's sections and transits	
o Band cable runs, pack tubes, and transits	
o Identify and tag cables	
o Learn and work with different types of cables	

(f) Foundation crew	350
o Learn blueprint reading	
o Lay out all areas of ship	
o Learn different foundations	
o Install foundation	
(2) <u>Second Year</u>	
(a) Main switchboard power distribution	500
o Learn power generation. Work generator hookup	
o Learn power distribution (shore power)	
o Learn resin and alternace power feed (MBTs, ASTs)	
o Dress and install large cable throughout	
o work degaussing system	
(b) Power, lighting, phones, announcing	1000
o Install equipment	
o Lay out and install local wireways and cable	
o Correlate blueprints	
o Hook up equipment	
o Learn special procedures peculiar to area	
(c) Temporary light	500
o Work temporary light shop, repair cables, and equipment	
o Work on ship with temporary lighting	
o Power distribution to weld machinery and temporary ventilation	
(3) <u>Third Year</u>	
(a) Weapons systems	334
(b) Communications Center	333
(c) Combat Information Center	333
(d) Propulsion System	500
o Install junction boxes	
o Layout and install susceptible cable runs	
o Cut in and hook up cables	
o Coordinate with other systems	
(e) Crew Test, IC test. propulsion test, power lighting test	500
o Use electronic test equipment	
o Follow teat memos for equipment or syetem test	
o Make corrections on equipment to complete rest	
TOTAL HOURS:	6000

- b. School Requirements. The "Standards" prescribe formal instruction for all three years.

The apprentice must attend a local vocational-technical school two nights per week for three hours for 43 weeks per year for the first two years (258 hrs./yr.). The curriculum is laid out in detail and appears to be quite comprehensive.

The third and final year requires attendance at a local community college for a comprehensive three-semester course on alternating current principles and practices.

The union is in the process of setting up a comprehensive course on programmable controllers. This course will be applicable to journeymen rather than apprentices, but it indicates the high level of interest in formal schooling that keeps up with advancing technology.

4.6 CONCLUSIONS (SEATTLE GEOGRAPHICAL AREA)

- (1) Cooperative apprenticeship programs in the Seattle area are aimed at producing fully trained journeymen. Ensuring that a three-year apprenticeship produces a well-rounded, highly skilled journeyman is, of course, a function of employer and union policy, economic factors, the quality of the formal education, and the expertise and enthusiasm of the persons directly involved.
- (2) At the time of this evaluation (late 1984), it is evident that the economic level of shipyard activity in the Seattle area has affected all aspects of cooperative marine apprentice training. Employment at Todd Pacific Shipyards, Seattle Division, went from about 4500 in 1982 to approximately 1500 in the Fall 1984. Lockheed Shipbuilding Company's drop has been similar. As of September, 1984, Lockheed had approximately 2800 employees, but the firm has announced a prospective layoff of another 600 workers. At present the only new construction contracts at Lockheed are for three U.S. Navy LSD ships which will be completed in 1986.

Some of the effects of this economic downturn are as follows:

- a. Currently upon completion of apprenticeship, the new journeyman goes to the bottom of the journeyman seniority list and, in most cases, is immediately laid off.
- b. The employers are not in a financial position to take on inexperienced apprentices starting at about \$9.45/hr.

- c. Shifting an apprentice from one employer to another in order to sustain the apprenticeship is currently not feasible in most cases due to current economics.
 - d. Current low projection of future shipbuilding activity in the Seattle area discourages apprenticeship applications.
- (3) The union boilermaker, electrician, and plumber apprentice training coordinators, a Washington State apprentice advisor, and the labor and personnel representatives of management at Todd and Lockheed cite contributions made by the agencies involved. They highlighted the following points in regard to cooperative apprentice training in the Seattle area:
- a. The State of Washington plays an active and enthusiastic role in all aspects of apprentice training; this not only provides commonality across the trades but also lends status to apprenticeships in general.
 - b. The joint management and labor (union) committees (JATC), which are dealing with small numbers of marine apprentices, are able to disregard upper-level management/labor differences and agree on selection, supervision, grievance handling, and the need to persuade management to ensure broad training of the apprentice in accord with state standards.
 - c. In general, management of the two largest employers (Todd and Lockheed) has been very supportive of apprentice training. When possible, each has accepted the laid off apprentices of the other when the work load of one company was down and the other

was up. Todd has designated a senior journeyman in each trade to oversee their apprentices and to coordinate with the cognizant JATC training coordinator.

d. Renton Vo-Tech Institute and other state schools play a key role by providing accredited instruction for the classroom portions of apprenticeship instruction.

(4) The JATC and the training trust function well in providing funds for managing, supervising, and promoting a successful apprenticeship. However, the fact of life is that the current low economic shipbuilding and repair activity in Seattle, coupled with relatively high wage rates and a rigid seniority system, essentially precludes multi-shipyard cooperation in the area of apprentice training.

4.7 RECOMMENDATIONS

Other geographical areas considering cooperative maritime training programs should:

- (1) Determine the availability and suitability of training trust funds as a mechanism for funding.
- (2) Examine the JATC concept as a possible model for situations necessitating joint industry/union involvement in training.
- (3) Assess the need and availability of accredited community colleges and/or vo-tech institutes to participate in the training program.

- (4) Contact their state's Apprenticeship Training Council (or the equivalent) for determination of state law on apprentice programs.

5. RECOMMENDED GUIDANCE FOR COOPERATIVE MARITIME TRAINING IN OTHER GEOGRAPHICAL AREAS.

5.1 OVERVIEW

While no other maritime area in the United States will present the same set of geographical and economic factors as Norfolk and Seattle, it is assumed that all can appreciate the long-term value of improving shipyard skills through community, union/labor, and industry cooperation. This section of the report is intended to help local leaders and managers of the maritime industry, community organizations, organized labor, educational institutions, local government, and economic and employment agencies to determine the benefits that might accrue from cooperative maritime industry training.

The lessons learned from the Norfolk and Seattle areas provide an excellent starting point for addressing the basic questions about shipyard cooperative training in your particular area. The purpose of this section of the report is to assist shipyard executives in determining

- (1) if improved cooperation in training is needed/desirable in their area, and
- (2) where to start and what to consider if the decision is to actually develop or improve a program.

The section offers guidance on how to decide upon and initiate the cooperation that has already proven successful in two geographical areas in the U.S. Figure 8 provides a summative comparison of major factors of evaluation for those two areas.

<div>FACTOR</div> <div>AREA</div>	AREA DESCRIPTION	LEGAL BASIS	INCEPTION AND DEVELOPMENT	MAJOR PLAYERS	FUNDING AND FINANCE SOURCES	STAFF AND FACILITIES	GOAL AND SCOPE OF PROGRAM
NORFOLK AREA	<ul style="list-style-type: none"> • 31st MSA In US Norfolk, 267,000 Newport News, 145,000 Va. Beach, 262,000 Hampton, 123,000 Portsmouth, 105,000 Chesapeake, 114,000 • 3 Major Yards • 8th In Containerized Cargo • Large U.S. Navy Homeport 	<ul style="list-style-type: none"> • incorporation of non-profit educational foundation (State of Virginia) • Right-to-work laws in State of Virginia 	<ul style="list-style-type: none"> • Motivated, local shipyard executive South Tidewater Ship Repairers' Association, Inc Start-up in 1981 	<ul style="list-style-type: none"> Maritime Training Institute, inc. Ž South Tidewater Ship Repairers' Association, inc. (13 firms) Ž Southeastern Tidewater Area Manpower Authority (STAmA) Ž Private Industry Council (PIC) 	<ul style="list-style-type: none"> Ž CETA (to Ott 83), JTPA (to present • "in kind" support from Ship Repairers' Association Trainees get \$3/day JTPA stipend 	<ul style="list-style-type: none"> • Executive Director Ž 3 instructors Ž One rent-free bldg (11,000 Sq. ft.) w/shops and classrooms 	<ul style="list-style-type: none"> Graduate motivated shipyard helpers Familiarity with several ship repair skills, safety, and the yard environment 12 weeks (480 hours) in length Annual output averages 120 helpers Excellent hire & retention rates
SEATTLE AREA	<ul style="list-style-type: none"> • PMSA Seattle 1,607,000 Ž Major Harbor Ž 3 Major Shipyards • 5th in Containerized Cargo • No Navy Homeporting 	<ul style="list-style-type: none"> • Federal Apprentice Act • State of Washington Apprenticeship Laws • Pacific Coast Master Agreement between Shipbuilding/Repair Firms and Trade Unions 	<ul style="list-style-type: none"> • Apprenticeship training agreements between employers, unions, and State date back to 1940's 	<ul style="list-style-type: none"> Ž 3 major and 8 small shipbuilding/repair firms in Seattle area • 11 trade unions (Seattle locals) • State Council (State of Washington) • JATC • Renton Vo-tech institute 	<ul style="list-style-type: none"> \$.03 per employee work-hour paid by employers to training trust fund for each trade Facility rental payments by Renton Vo-tech Institute Ž Apprentices are paid wages by their employers 	<ul style="list-style-type: none"> • JATC-selected Training Coordinator Directors Renton Vo-tech Institute instructors Union locals' school facilities Ž Community College 	<ul style="list-style-type: none"> Graduate trained apprentices (to journeyman) in skilled trades Program length varies by trade (e. g., Boilermakers program is 3-years of 6,000 hours work/school combination) Program at low ebb due to economic conditions

Figure 8. Comparison of Major Program Factors (by Geographic Area)

The guidance in this section is organized along these major factors. The section offers a number of questions to be answered as a method of evaluation for other maritime communities in the U.S. In addition, Appendix B is an initial listing of some areas that might consider this type of evaluation. The list priority is based on quantity of total port tonnage and, obviously, is not inclusive of all areas that have the potential to benefit from cooperative training. Any community with an active maritime industry might do well to evaluate the need for and feasibility of cooperative training.

5.2. WHO SHOULD INITIATE ACTION?

Successful new programs or major improvements to existing programs require an enthusiastic initiator, organizer, and persuader. Since cooperation in producing higher craft skill levels within a community benefits the community as a whole, the profession of the initiator is not important. He might be an executive in the local shipyard industry. He might also be an educator, an elected official, or a union representative. Whoever he is, he needs to assemble considerable information before the what, where, and how questions of a cooperative training program can be addressed. Integration of all the information will enable the initiator to answer the larger question as to whether some form of cooperative maritime training is desirable and feasible.

5.3. SHOULD WE HAVE A COOPERATIVE MARITIME SKILL TRAINING PROGRAM IN OUR AREA?

The following points or questions should be examined to start the process of deciding local need.

5.3.1 Define your area geographically. How many firms are there in or related to the local shipyard industry? How large is their work force? What percent of the labor force is the local shipyard work force? Are there local shipyard industry organization(s) or informal network(s) with which to discuss area need?

5.3.2 Is there a significant use of helpers in the local shipyards?

5.3.3 Are shipyard helpers hired without any specific prerequisite skill or environmental training?

5.3.4 Are there any helper training programs in the area?

5.3.5 Does the local Private Industry Council (PIC) have proportional representation from the shipyards? If SO, have such representatives had discussions with the JTPA state agency (e.g., Area Manpower Authority)?

5.3.6 Have any proposed JTPA training programs for maritime skills been submitted to the state agency for funding in the past?

5.3.7 Are there currently any maritime skill training programs which are supported by JTPA federal funds? Are there any non-maritime JTPA skill training programs in place?

5.3.8 Are there currently in existence craft skill training programs that are directly pointed at or closely related to shipyard skills?

5.3.9 What is the level of apprentice training for maritime skills in your area? Is there any cooperation across industries? Who are the apprentices indentured to? Is everyone satisfied with apprentice training?

5.3.10 Would any union/management trust fund monies be available? Are any being used for training?

5.3.11 What is the level of state involvement in vocational-technical training in terms of promulgating standards and/or funding training?

5.3.12 Is there any involvement/interest by the local vo-tech institute or community college in providing maritime skill training?

Once the above questions have been investigated and answered, information should be available to make judgments as to whether local need is sufficient and whether cooperative training might be feasible.

5.4 WHAT ARE THE INITIAL STEPS TOWARDS A COOPERATIVE TRAINING PROGRAM?

Once the question of whether to pursue cooperative training program is answered, initiating actions and questions need to be resolved. The following questions and discussion offer guidance.

5.4.1 Who Should Be Trained?

There are a number of options such as: (1) helpers for a specific skill/trade, (2) general helpers (as in Norfolk), (3) apprentices, (4) journeymen specific-skill upgrading, or (5) journeymen training in leadership, supervisory, and planning skills. The prior investigation and data gathering should have provided some indication as to which of the above would be the most logical starting point. If not, then the local shipbuilding and repair industry managers/executives must meet and decide.

5.4.2 Can An Initiating Organization Be Identified?

The initiating organization can of course be a group, committee, or one person acting for the local industry. It could also be a group or committee that is similar to the JTPA Private Industry Council (PIC), where all sectors of the community are represented. In any case, the local shipyard industry executives must provide the conceptual direction and broad outline of what they

want in terms of cooperative training. The incorporation of the Norfolk ship repair companies into a non-profit tax free educational foundation - with the intent to apply for Federal funding under JTPA - was an important initial organizational step in that locale. Also in Norfolk, the early appointment of a prospective executive director for the conceived training center was obviously an important early step. This action facilitated decision-making, planning, acquisition, and start up of the training center. In the Seattle area, the unions, industry, state or vo-tech institute could be considered the initiator of shipyard entry level or general training using trust funds and applicable to all journeymen or apprentices.

5.4.3 What are Possible Sources of Funding and Tuition?

The following potential funding sources should be investigated as part of program development:

- (1) Taft-Hartley Act union/industry training Trust Funds, which are normally a segment of the union or employee pension funds.
- (2) The Federal Jobs Training Partnership Act (JTPA) funds used to provide training for economically and/or physically disadvantaged persons.
- (3) The Federal Vocational Act Funds which are in use by the State Vocational Training Programs.
- (4) Industry funding or support in kind (i.e., facilities, equipment, scrap material, etc.).
- (5) State or local funds available to support training.

Some points of contact for investigating these sources are suggested at the end of this section.

5.4.4 What Specifics of Training Need To Be Addressed In Detail?

Once it has been decided who to train (para. 5.4.1), then a number of issues relating to implementation must be addressed in some detail. The following questions should be examined.

- a. Exactly what knowledge and skills are desired of the graduate? Can a list of training objectives be defined?
- b. What are the desired prerequisites for each student (i.e., cut score on tests; high school graduate or not; etc.)?
- c. How many are to be trained per annum to meet local industry need?
- d. What is estimated length of course?
- e. What development or acquisition of curriculum is needed? Is use or modification of extant material feasible (e.g., instructor guides, student texts, etc.)?
- f. What are the major training equipment, tools, and/or laboratory requirements?
- g. What consumable materials are needed for instructional purposes. (See page A-4 of Appendix A)
- h. What are the instructor and staff requirements for the intended course?
- i. What are size and type of facilities needed to conduct the courses?

3. What is the availability of required courses, labs, facilities, instructors, and materials from local sources (i.e., vo-tech school/community college, local industries, etc.)?

Appendix A, along with information contained in the body of this report, provides data from the Norfolk and Seattle programs on these topics. They might be used for reference in preparing answers to these issues.

Addressing the above issues in detail will lead to further questions or options to consider and act on. The initiating person or organization should keep cooperative requirements in mind when selecting options or making decisions. In both Norfolk and Seattle, the relationships among the various organizations at each location (e.g., shipyards, state agencies, unions/labor, local schools, etc.) form a framework which allows each program to exist.

5.4.5 What Are the Student Recruitment, Selection, and Placement Considerations?

For a cooperative effort involving a number of companies, the recruitment process may be predetermined by the type and level of training decided upon. For example, if an apprentice course is being offered, then only the industries' apprentices would be eligible. A Federally funded program would, of course, require wide dissemination for initial offering and selection criteria based on the Federal requirements. Selection processes must be carefully weighed in advance to preclude downstream problems. Whether selection is by first come/first served or by detailed criteria that include educational level, test results, and other evaluations, the method should be carefully thought through and agreed to by all the sponsors of the training.

Placement of graduates is a key factor when Federal funding of the training under JTPA is undertaken. In this case, the expected hiring of the graduates must be an integral part of the total program plan; otherwise the program will not be funded.

5.5 WHO CAN BE CONTACTED FOR ADDITIONAL INFORMATION?

1. JTPA. Each state is divided into JTPA service delivery areas. The boundaries of each are established by the state. Each area has an administrator who works with the local PIC and elected Policy Council and is familiar with all aspects of local JTPA funding.
2. Trust Funds. If not for training, trust funds may be in use for pension or other labor/management arrangements. Examine how such trust funds already function. If none exist in the area, then contact local banking or financial institutions for additional information on how to proceed on establishing such trust funds.
3. Apprentice Training. Most states have some degree of involvement in apprentice training stemming from the Federal Apprenticeship Act of the 1940s. Either the local state apprentice training representative or the state Department of Labor should provide a starting point.
4. Vocational Skill Training. Either the administrator or director of the local vocational-technical training school or community college.

5. Norfolk Area Shipyard Helper Training Program.

Tidewater Maritime Training Institute
Executive Director, Mr. Leo Marshall,
114 Mulberry Street
Norfolk, Virginia 23523

6. State of Washington Apprenticeship Training.

Mr. C. David Hutchins
Assistant Director for Apprenticeship
Department of Labor and Industries
State of Washington
Olympia, WA 98504

7. Principal Investigator For This Report.

Director, Special Programs
DDL OMNI Engineering
7926 Jones Branch Drive, Suite 500
McLean, VA 22101

In addition to the above sources of information, the Education panel of the SNAME Ship Production Committee may be able to provide some additional referral services for interested individuals within the industry. Appendix C provides a listing of the primary persons contacted in the process of preparing this report.

APPENDIX A
TIDEWATER MARITIME TRAINING CENTER
SUPPORTING DATA

DEPARTMENT BUDGET
 Department Budget VII Project Maritime Training Center Fiscal Year 1981 1982

OBJECT CODE:	81 TOTAL	82 TOTAL
Personnel Salaries	67,770	97,950
Fringe Benefits	12,528	28,004
Travel -Local	1,539	1,512
Travel -Out of Town		
Equip. Rental	5,615	5,565
Equip. Purchase	48,724	5,178
Equip. Repair	2,000	3,960
Space Rent	86,120	12
Space Repair & Main.	5,000	1,224
Utilities	10,170	6,939
Telephone & Telegraph	1,645	1,994
Postage	432	540
Supplies & Materials	4,350	21,966
Printing	2,000	837
Advertising		2,130
Publications	200	160
Staff Develop.		
Client Tuition & Allow.	74,400	118,066
Medical Exams		1,094
Daycare		
Legal		
Audit		
Consulting	720	400
Insurance		1,919
Other	1,500	613
TOTAL	324,713	300,113

TIDEWATER MARITIME TRAINING CENTER

EQUIPMENT INVENTORY OF SHOP

1. heavy duty vises
2. 1 floor drill press
3. 1 bench drill press
4. 2 bench grinders
5. 1 **pedestal** grinder
6. 1 machine shop drill press
7. 1 lathe (metal)
8. 1 cut off saw (metal)
9. 1 power hack saw
10. 1 portable power hack saw
11. 1 ports-pack
12. 1 welding machine (arc)
13. 1 welding machine- (tig) (mig)
14. welding grids
15. 2 distribution boxes (welding)
16. 6 burning torches and regulators
17. 15 welding helmets
18. 20 burning and safety shields
19. assortment of pipe fitting tools
20. pipe threading machines (manual and powered)
21. metal brake
22. sandblast machines and hoppers
23. metal rollers
24. chain falls
25. come alongs
26. portable grinders
27. portable drills 1/4", 3/8", 1/2" drive
28. portable electric hand saw
29. saber saws
30. band saw
31. nibblers
32. air chisels
33. air impact wrenches
34. socket sets. 3/8", 1/2" drives
35. micrometers (set)
36. dial indicators
37. depth gages
38. tap and die set
39. hose repair kit
40. **refrigeration** manifold kit
41. leak detector (refrig)
42. air compressor
43. vacuum cleaner (shop)
44. exhaust system (paint) (welding) burning shop) (mill shop)
45. cabinets for materials storage
46. hot box for welding electrodes
47. track burner
48. bolt cutters
49. sheet metal shears
50. **"c" clamps** (assortment)
51. pipe clamps
52. pipe rack

EQUIPMENT INVENTORY (Continued)

- 53. metal rack
- 54. wood rack
- 55. hand carts (gas cylinders)
- 56. wheel barrow
- 57. pallet jack
- 58. floor jack
- 59. platform truck
- 60. hydraulic press
- 61. portable jacks
- 62. paint guns
- 63. fiberglass repair tools
- 64. sandblast hoods
- 65. needle gun chipper
- 66. chipping hammers (air)
- 67. sanders, (belt and orbital)
- 68. assortment of large files
- 69.** tubing bender
- 70.** claw hammers
- 71. sledge hammers
- 72.** levels, 2 and 4, torpedo
- 73.** "T" square 4'
- 74. pipe vise
- 75. hand saws
- 76. table saw 10"
- 77.** radial arm saw 10"
- 78.** planer surfacer (wood)
- 79.** vehicles (bus or vans for trainee transportation)
- 80.** desks office and class room
- 81.** chairs office and class room
- 82. movie and overhead projector
- 83. cabinets
- 84. copy machine
- 85. typewriters
- 86. calculators
- 87. telephones
- 88. file cabinets
- 89. book shelves
- 90. tape dispenser
- 91. clocks, office and classroom
- 92. refrigerator (lunch room)
- 93. lockers (locker rooms, men and ladies)

MATERIALS NEEDED TO SET UP A SHOP

TIDEWATER MARITIME TRAINING CENTER

1. Helmet Repair Kits
2. Ear Plugs
3. Sandblast hood replacement shields
4. hack saw blades
5. table and radial arm saw blades
6. pipe die cutter replacements
7. sandblast nose repair **kit valves**
8. assortment nuts, bolts, washers
9. assortment wood, sheet metal, metal screws
10. assortment PVC fittings
11. assortment pipe fittings, valves, elbows couplings, plugs, tees, unions, nipples
12. pipe hangers
13. sanding belts, disc, sheets, cylinders
14. set arch punches
15. plastic gloves (fiberglass)
16. paper suits (fiberglass)
17. grinding wheels
18. respirator cartridges, dust and chemical
19. extension cords
20. goggles (clear, green)
21. paint trays
22. paint roller covers
23. roller handles
24. paint brushes
25. paint (colors as desired)
26. saber saw blades
27. drill bits
28. lathe cutting bits
29. fold out rulers
30. tape measures 16' and 20'
31. dividers
32. **calipers**
33. band saw blades
34. fiberglass chip brushes
35. fiberglass resin
36. fiberglass tape
37. fiberglass pigment
38. welding gloves
39. spare screw drivers, wrenches, pipe wrenches, adjustable wrenches, other hand tools as needed.
40. protractors
41. welding electrodes
42. step ladders
43. extension ladder
44. grease gun and grease
45. cleaning solvent
46. cutting oil
47. 2' framing squares
48. wood and metal chisels
49. banding tool
50. electric wire
51. electric fittings
52. template paper
53. **Poly** cloth
54. paper buckets (fiberglass repair)

MATERIALS LIST (Continued)

- 55. cleaning gear, brooms, mops, toilet gear
- 56. assortment, nails for mill work
- 57. brazing rods
- 58. all thread rods
- 59. chains
- 60. cable (assortment for rigging)
- 61. rope (for rigging)
- 62. water hose garden
- 63. lubricating oil
- 64. wax for saws and vehicles
- 65. oil engine and transmission (for vehicles)
- 66. penetrant kit
- 67. letter and number metal stampset
- 68. stencil set
- 69. flat bar assortment
- 70. angle iron assortment
- 71. pipe assortment metal, black, galv., copper, brass, cuni
- 72. plate assorted thickness
- 73. sheet metal assortment
- 74. lumber assortment
- 75. channel bars assortment
- 76. commercial tubing assortment
- 77. PVC pipe assortment
- 78. note books, paper, pencil, etc. (for trainees)

TIDEWATER MARITIME TRAINING CENTER
TRAINEE TOOL ISSUE

LINE ITEM	QUANTITY	DESCRIPTION	COST	ISSUED DATE	RETURNED DATE
1.	1	Container for Tools	\$14.25		
2.	1	10" Pipe Wrench	14.40		
3.	1	12" Pipe Wrench	11.60		
4.	1	2 lb. Mall	16.20		
5.	1	Hacksaw	9.20		
6.	1	12" Crescent Wrench	12.60		
7.	1	Center Punch	5.00		
8.	2	Screwdrivers: Straight	3.00		
9.	1	Phillips Screwdriver	2.10		
10.	1	10" File (Flat)	4.85		
11.	1	6" Ruler (fold out type)	9.50		
12.	1	Hand Hammer (Ball Pein)	12.00		
13.	1 pr.	9" Pliers (Channel Lock)	11.00		
14.	1	Combination Square	12.15		
15.	1	Bevel Square	4.75		
16.	1	Pair Dividers	14.30		
17.	1	Tape Line (20')	12.60		
18.	1	Slag Hammer	9.10		
19.	1	Wire Brush, Hand	2.30		
20.	1	Chisel	5.00		
21.	1	9" Comb. Plier/Wire Cutter	11.60		
22.	1	Diagonal Cutters	10.60		
23.	2	Drift Pins	8.00		
24.	1	Lock and Key	5.75		
25.	1	Protractor	3.00		
26.	1	12" Wooden Rule	1.00		
27.	2	Paint Brushes	5.00		
28.	1	Combination Lock	9.60		
29.	1	Compass	1.50		

TIDEWATER MARITIME TRAINING CENTER

TRAINEE SAFETY EQUIPMENT ISSUE

THE FOLLOWING SAFETY ITEMS OF EQUIPMENT ARE ISSUED TO TRAINEES UPON ENROLLMENT:

- 1 PAIR SAFETY SHOES *
- 1 PAIR SAFETY GLASSES *
- 1 PAIR WORK GLOVES *
- 1 PAIR EAR PLUGS *
- 1 SAFETY HELMET
- 1 RESPIRATOR
- 1 PAIR WELDER' S GLOVES
- 1 WELDER' S JACKET

* = ITEMS ARE RETAINED BY TRAINEES UPON GRADUATION.

TRAINING ANNOUNCEMENT

FOR THOSE INTERESTED IN PURSUING A CAREER IN
THE SHIP REPAIR INDUSTRY (SHIPYARD WORK)

CONDUCTED BY

THE TIDEWATER MARITIME TRAINING CENTER

RESIDENTS OF VIRGINIA BEACH, ISLE OF WIGHT,
FRANKLIN, CHESAPEAKE, SUFFOLK, NORFOLK, PORTS-
MOUTH AND SOUTHAMPTON ARE ELIGIBLE TO APPLY.

COURSE SPECIFICS:

- Introduction to shipyard trades (burner, welder, pipefitter, shipfitter, sandblaster, painter, machinist, fiberglass repair, electrician).

No Cost To Applicant

- Three month course of instruction.
- Thirty (30) trainees accepted.
- Job interviews for successful graduates.
- Next class convenes October 1, 1984.
- Program is funded with Job Training Partnership Act Federal Funds by the Commonwealth of Virginia through STAMA and the Southeastern Tidewater Private Industry Council.

HOW TO APPLY:

- Interested candidates should come to the Maritime Training Center at 9:00 A.M. on Monday, September 17, 1984.
- To make application if eligible under Job Training Partnership Act.
- Close-out time for application to M.T.C. is Monday, September 17, 1984.

LOCATION:

The Tidewater Maritime Training Center is located at
the foot of Chestnut Street-Berkley
114 Mulberry Street, Virginia

"AN EQUAL OPPORTUNITY EMPLOYER"

CLASS: 16		TIDEWATER MARITIME TRAINING CENTER - SCHEDULE MODULE				SEVEN GENERAL SHIPYARD WORKER		INSIDE MACHINIST				
DAY		7:30	8:30	9:30	10:30	11:30	12:00	12:30	1:30	2:30	3:30	4:00
OCT 22 MON	16	7.1.8 INTRO TO MACHINIST GUEST: M. Cronce (NORSHIPCO) R. MARTIN			7.3.7 SHOP ORIENTATION MACHINIST R. MARTIN		PRACTICAL WORK (MACHINIST, WELD, BURN, MILL, Fiberglass) L. MARSHALL, P. RODRIGUEZ, R. MARTIN, B. MCCONNELL					
OCT 23 TUES	17	7.0.2 LABEL PLATES TAGGING EQUIP. B. MCCONNELL		7.2.19 SAFETY P. RODRIGUEZ	7.0.3/7.0.5 PUMPS, FLANGES AND GASKETS R. MARTIN		PRACTICAL WORK (SHIPYARD VISIT JONATHAN CORP.) L. MARSHALL, R. MARTIN, B. MCCONNELL, P. Rodriguez					
OCT 24 WED	18	5.6.7 MATH GUEST: BILL CRAFT (ANA) L. MARSHALL			7.0.4 ENGINES AND COMPRESSORS R. MARTIN		PRACTICAL WORK (WELD, MACHINIST, BURN, MILL, FIBERGLASS) P. RODRIGUEZ, B. MCCONNELL, L. MARSHALL, R. MARTIN					
OCT 25 THUR	19	4.6.6 MATH L. MARSHALL			7.9.8 BLUEPRINT READING B. MCCONNELL	PRACTICAL WORK L. MARSHALL, P. RODRIGUEZ, R. MARTIN, B. MCCONNELL		PRACTICAL WORK (WELD, MACHINIST, BURN, MILL, FIBERGLASS) L. MARSHALL, R. MARTIN, B. MCCONNELL, P. RODRIGUEZ				
OCT 26	20	REVEIW, TEST, CRITIQUE B. MC CONNELL, P. RODRIGUEZ, R. MARTIN, L. MARSHALL, B. MCCONNELL, L. MARSHALL, R. MARTIN, L. MARSHALL, P. RODRIGUEZ, B. MCCONNELL, R. MARTIN				PRACTICAL WORK		PRACTICAL WORK (WELD, MACHINIST, BURN, MILL, FIBERGLASS)				

FLU SHOTS AT 10:00 A.M.

H. P. Rodriguez
TRAINING SUPERVISOR

MODULE HOURS: 80

CLASSROOM HOURS 35.0
PRACTICAL HOURS 45.0

CURRENT SCHEDULE: 40

CLASSROOM HOURS 20
PRACTICAL HOURS 20

Leo Marshall
EXECUTIVE DIRECTOR



TIDEWATER MARITIME TRAINING INSTITUTE, INC.

114 MULBERRY STREET

NORFOLK, VIRGINIA 23523

(804) 543-2799/2899

MEMBERS

South Tidewater
Association of
Ship Repairers Inc.

**BOARD OF
DIRECTORS**

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Architects, Inc

Best Repair Co., Inc

Central Radio Co.

Chesapeake Marine
Refrigeration

Colonna's Shipyard Inc

Halifax Marine Services

ITT Henze Service

Lyon Shipyard Inc

Marine Hydraulics
Int'l. Inc.

Metro Machine Corp.

Todd Electric Co.

Tidewater Steel Company

EXECUTIVE DIRECTOR
Leo J. Marshall

UNANIMOUS RESOLUTION BY THE
BOARD OF DIRECTORS OF THE TIDEWATER
MARITIME TRAINING INSTITUTE, INC.

WHEREAS, the Tidewater Maritime Training Institute, Inc. (the "Corporation") was organized for the purpose of the development and operation of the Maritime Training Center (the "Center") for the ship repair industry in Tidewater, Virginia; and

WHEREAS, the Corporation is the sponsor and monitor of operations at the Center in order to assure its continued existence; and

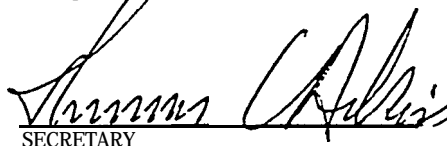
WHEREAS, the Corporation is committed to a goal of providing employment to successful graduates of the Center; and

WHEREAS, the Corporation will require financial assistance from various sources, including the STAMA Private Industry Council in order to support the Center;

NOW THEREFORE, BE IT RESOLVED that this Corporation requests Job Training Partnership Act funding from the STAMA Private Industry Council in order to operate the Maritime Training Center for the period July 1, 1984 to June 30, 1985, and BE IT FURTHER RESOLVED that the officers of this Corporation be and hereby are authorized to prepare and submit a written proposal to the Private Industry Council and to take all actions which are necessary and appropriate to effectuate the intent of this Resolution; and

BE IT FURTHER RESOLVED that the Corporation and its members shall use their best efforts either to employ successful graduates of the Center or to assist said graduates in obtaining other employment in the ship repair industry.

I certify that the foregoing resolution was unanimously approved by the Directors of the Tidewater Maritime Training Institute, Inc. at its duly called meeting on April 14, 1984.


SECRETARY

A Non-Profit Educational Institution. Tax Exempt



TIDEWATER MARITIME TRAINING INSTITUTE, INC.

114 MULBERRY STREET

NORFOLK, VIRGINIA 23523

(804) 543-2799/2899

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Intl, Inc.

Metro Machine Corp.

Todd Electric Co.

Tidewater Steel Company

EXECUTIVE DIRECTOR
Leo I. Marshall

TRAINING COMPLETION REPORT

IN

**SHIPYARD INDOCTRINATION AND SHIP REPAIR TRAINING
FOR**

NAME OF GRADUATE. _____

SOCIAL SECURITY NUMBER: _____

DATE OF GRADUATION: _____

as the result of successful completion of a Four Hundred Eighty (480) hour Training Course in SHIPYARD HELPER as prescribed by the Shipyard Board of Directors for the Tidewater Maritime Training Institute. Included in this curriculum was practical work in the ship repair trades of Pipefitter, Burner, Welder, Shipfitter, Sandblaster, Painter, Shipyard Machinist, Electrician, and Fiberglass Repair. Additional Shipyard training included Ship and Shop Orientation, Ship Systems, Shipyard Safety, Shop Math and Blueprint Reading.

EXECUTIVE DIRECTOR

A Non-Profit Educational Institution. Tax Exempt

APPENDIX B

POTENTIAL AREAS FOR SHIPYARD COOPERATION IN TRAINING

APPENDIX B

Potential Areas for Shipyard Cooperation in Training

	AREA	1982 TOTAL TONNAGE EXPORT/IMPORT DOMESTIC, BARGE WATERBORNE	POPULATION	*RANK CMSA PMSA MSA	1980 CENSUS UNEMPLOYMENT %	MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES PLUS MAJOR TOPSIDE REPAIR FACILITIES
1	New Orleans, LA	177,302,000 tons	1,256,000	27th MSA	7.0	7 major yards plus 7 major topside repair yards
2	New York, North New Jersey	149,250,000	17,539,000	1 St CMSA	New York-7.7 North N.J.-7-12	6 major yards plus 17 repair
3	Baytown, Houston, Galveston, Texas City, TX	137,368,000	3,101,000	9th CMSA	Baytown-5.3 Houston-3.6 Calveston-4.3	4 major yards plus 10 repair
4	Norfolk, Va. Beach, Newport News, VA	76,205,000	1,160,000	31st MSA	Norfolk-7.7 Newport N.-6.9 Va. Beach-5.3	5 major plus 15 repair Includes 1 Naval Shipyard
5	Los Angeles, Long Beach, San Pedro, CA	75,109,000	7,478,000	PMSA	L.A.-6.8 L.B.-5.8	3 major plus 0 repair Includes 1 Naval Shipyard
6	Baton Rouge, LA	68,556,000	494,000	69th MSA	7.1	1 major plus 0 repair
7	Philadelphia PA, Camden, Paulsboro, NJ	56,716,000	4,717,000	PMSA	Philly-11.4 Camden-17.9	2 major plus 3 repair Includes 1 Naval Shipyard
8	Baltimore	40,831,000	2,200,000	15th MSA	10.8	2 major plus 1 repair
9	Tampa, St. Pete/ Clearwater, FL	38,079,000	1,614,000	22nd MSA	Tampa-5.7 St. Pete-5.6 Clearwater-4.4	1 major plus 5 repair

*CMSA - Consolidated Metropolitan Statistical Area (A large metro complex)

PMSA - Primary MSA (defined component of a CMSA with no ranking)

MSA - Metropolitan Statistical Area (large city and adjacent communities)

APPENDIX B

Potential Areas for Shipyard Cooperation in Training (Continued)

	AREA	1982 TOTAL TONNAGE EXPORT/IMPORT DOMESTIC, BARGE WATERBORNE	POPULATION	*RANK CMSA PMSA MSA	1980 CENSUS UNEMPLOYMENT %	MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES PLUS MAJOR TOPSIDE REPAIR FACILITIES
10	Corpus Christi, TX	36,186,000	326,000	99th MSA	4.8	0 major plus 1 repair
11	Port Arthur, Orange, Beaumont, TX	34,510,000	375,000	88th MSA	PT Arthur-10.3 Beaumont-5.8	3 major (oil rigs) plus 1 repair
12	Mobile, AL	32,321,000	444,000	74th MSA	7.0	1 major plus 0 repair
13	Portland, OR	25,129,000	1,106,000	PMSA	6.9	3 major plus 2 repair
14	Culfport/Biloxi/ Pascagoula, MS	22,012,000	Pascagoula 118,000 Gulf/Biloxi 182,000	218th MSA 153rd MSA	(Culfport-6.3 Biloxi-7.1 Pascagoula-8.2	1 major plus 0 repair
15	Boston, Quincy, Fall River, MA	21,451,000	2,806,000	PMSA	Boston-6.1 Quincy-4.5 Fall River-7.6	4 major plus 2 repair
16	Seattle	17,805,000	1,607,000	PMSA	5.9	3 major plus 8 repair
17	Jacksonville, FL	12,892,000	722,000	50th MSA	5.8	2 major plus 2 repair
18	Fort Lauderdale/Port Everglades, FL	11,487,000	1,018,000	PMSA City	4.4	1 major plus 2 repair

*CMSA - Consolidated Metropolitan Statistical Area (A large metro complex)

PMSA - Primary MSA (defined component of a CMSA with no ranking)

MSA - Metropolitan Statistical Area (large city and adjacent communities)

APPENDIX B

Potential Areas for Shipyard Cooperation in Training (Continued)

	AREA	1982 TOTAL TONNAGE EXPORT/IMPORT DOMESTIC, BARGE WATERBORNE	POPULATION	*RANK CMSA PMSA MSA	1980 CENSUS UNEMPLOYMENT %	MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES PLUS MAJOR TOPSIDE REPAIR FACILITIES
19	Savannah, GA	10,976,000	221,000	132nd MSA	7.9	1 major plus 1 repair
20	Portland, ME	10,456,000	194,000	145th MSA	6.4	1 major plus 4 repair
21	Oakl and	6,985,000	1,762,000	PMSA	9.4	1 major plus 0 repair
22	Charleston, SC	6,850,000	430,000	76th MSA	6.7	3 major plus 2 repair Includes 1 Naval Shipyard
23	Panama City/Pensacola, FL	3,356,000	290,000	109th MSA	Pan City-7.5 Pensacola-7.0	0 major plus 2 repair
24	M i a m i	3,160,000	1,626,000	PMSA	6.1	0 major plus 3 repair
25	San Diego	2,398,000	1,862,000	19th MSA	7.0	4 major plus 1 repair
26	Brownsville, TX	2,200,000	210,000	138th MSA	7.5	1 major plus 0 repair
27.	San Francisco	1,654,000	1,489,000	PMSA	6.1	4 major plus 6 repair Includes 1 Naval Shipyard

*CMSA - Consolidated Metropolitan Statistical Area (A large metro complex)

PMSA - Primary MSA (defined component of a CMSA with no ranking)

MSA - Metropolitan Statistical Area (large city and adjacent communities)

APPENDIX C

LIST OF PRIMARY CONTACTS

LIST OF PRIMARY CONTACTS

TIDEWATER (NORFOLK, VA) AREA

<u>NAME</u>	<u>ORGANIZATION</u>	<u>TITLE</u>
W. D. Payne	NORSHIPCO	Senior V.P.
R. A. Goldbach	Metro Mach. Corp.	President
Dana Grey	Moon Eng. Co.	V.P.
W. K. Johnson	Colonna's Shipyard	Ops Mgr.
L. Marshall	T.M.T.I.	Exec. Dir.
J. H. Hunter	Va. Port Authority	Dir. of Research
R. Scuillo	STAMA	Exec. Dir.

SEATTLE AREA

Dennis Plumb	Todd	Dir. of Pers.
G. N. King	Lockheed	Manager Labor Relations
Walter Hanson	Rowe Mach.	Gen. Mgr.
Merlene Kelly	Todd	App. & Training Coord.
Stan Gerrard	Wash. State	Seattle Apprentice Program Representative
John Tobey	Electrical Union Local	App. Coord.
Al Black	Boilermakers Union Local	App. & Trust Coord.
Frank Lavish	Pipefitter Union Local	Training Coord.
Larry Snell	Todd	Leading Man & App. Coord.

APPENDIX D
QUESTIONNAIRE CHECKLIST

QUESTIONNAIRE CHECKLIST
FOR
EVALUATION OF MULTI-SHIPYARD COOPERATIVE
TRAINING PROGRAMS

Site Location:

Investigator(s):

Shipyard Personnel:

Date:

I. PROGRAM SPONSORSHIP

A. Background

1. How did the Apprenticeship Training Program (ATP) develop?

	<u>Applies</u>	<u>Does not Apply</u>
(a) Through company management/staff interest in fostering a skilled work force.	_____	_____
(b) Through union interest in fostering a skilled work force.	_____	_____
(c) Through Private Industry Council interest in training and/or promoting a trained work force.	_____	_____
(d) Through government interest in promoting industry productivity.	_____	_____
(e) Through other special interest group(s) interest(s) in promoting training opportunity(ies) for segments of the work force.	_____	_____
(f) Any combination of the above.	_____	_____

2. who provided the initial funding for the ATP Program?

	<u>Applies</u>	<u>Does not Apply</u>
(a) The participating company(s).	_____	_____
(b) The sponsor company.	_____	_____
(c) The SP-9 Education Council.	_____	_____
(d) Local government.	_____	_____
(e) The local Private Industry Council.	_____	_____
(f) Local employee labor union efforts.	_____	_____
(g) Special interest groups.	_____	_____
(h) Other - specify.	_____	_____

3. Which one or more of the above cited groups provided the initial impetus for the ATP? (Describe response.)

4. Was a person, organization, concept or event a driving force that sustained the program? If so, describe.

5. Which person or organization is responsible for management decision making in the ATP?

	<u>Applies</u>	<u>Does not Apply</u>
(a) A Company Education Panel.	<hr/>	<hr/>
(b) A separate policy making body comprised of outside people.	<hr/>	<hr/>
(c) A combination of above specify.	<hr/>	<hr/>
(d) Appointment of director.	<hr/>	<hr/>

6. Please describe how management decision making occurs in the ATP.

B. Policy

7. How is policy as it relates to training program design or operation established?

	<u>Does not</u>
	<u>Applies Apply</u>
(a) A Company Education Panel.	<u> </u>
(b) A separate policy making body comprised of outside people.	<u> </u>
(c) A combination of above - specify.	<u> </u>

8. What is the level of program involvement with respect to the ATP for each of the following groups?

	<u>I N V O L V E M E N T</u>	
	<u>(Meetings)</u>	
	<u>Frequency</u>	<u>Scheduled</u>
	<u>D/W/M/I</u>	<u>Y/N</u>
(a) Company management.		
(b) Company staff.		
(c) Employee Union.		
(d) Private Industry Council.		
(e) Local government.		
(f) SP-9 Education Panel.		
(g) Special interest groups.		
(h) Other participating employers.		
(i) Local schools.		

9. For each of the groups identified in 2(a) above, what is the level of ATP program involvement with respect to: (Narrative.)

Recruitment of trainees?

Company management:

Company staff:

Employee Union:

Private Industry Council:

Local Government:

SP-9 Education Panel:

Special Interest Groups:

Other participating employers:

Local schools

10. For each of the groups identified in 2(a) above, what is the level of ATP program involvement with respect to: (Narrative.)

Financial sponsorship of trainees?

Company management:

Company staff:

Employee Union:

Private Industry Council:

Local Government:

SP-9 Education Panel:

Special Interest Groups:

Other participating employers:

Local schools

11. For each of the groups identified in 2(a) above, what is the level of ATP program involvement with respect to: (Narrative.)

Endowment and training program?

Company management:

Company staff:

Employee Union:

Private Industry Council:

Local Government:

SP-9 Education Panel:

Special Interest Groups:

Other participating employers:

Local schools

12. For each of the groups identified in 2(a) above, what is the level of ATP program involvement with respect to: (Narrative.)

Policy making decisions?

Company management:

Company staff:

Employee Union:

Private Industry Council:

Local Government:

SP-9 Education Panel:

Special Interest Groups:

Other participating employers:

Local schools

13. For each of the groups identified in 2(a) above, what is the level of ATP program involvement with respect to: (Narrative.)

Public relations/publicity?

Company management:

Company staff:

Employee Union:

Private Industry Council:

Local Government:

Special Interest Groups:

Other participating employers:

Local schools

14. For each of the groups identified in 2(a) above, what is the level of ATP program involvement with respect to: (Narrative.)

Hiring of program completers?

Company management:

Company staff:

Employee Union:

Private Industry Council:

Local Government:

SP-9 Education Panel:

Special Interest Groups:

Other participating employers:

Local schools

c. Student/Apprentice

15. How are trainees recruited into the ATP?

	<u>Applies</u>	<u>Does not Apply</u>
(a) From within the company/company employment department.	<hr/>	<hr/>
(b) Through local schools.	<hr/>	<hr/>
(c) Through local state employment service.	<hr/>	<hr/>
(d) Through newspaper.	<hr/>	<hr/>
(e) Through union referrals.	<hr/>	<hr/>
(f) Private Industry Council sponsorship (formerly CETA).	<hr/>	<hr/>
(g) Other shipyard companies.	<hr/>	<hr/>
(h) Other means.	<hr/>	<hr/>

16. Is there an application process for the student/apprentice to follow in order to gain entry to the program?

 Yes No

17. How would the potential applicant learn of this program and application process?

 School
 Newspaper
 Radio/TV
 Local state employment service
 Union
 Participating shipyard
 Other

18. Is there a written and/or performance test which the potential apprentice must take?

- ☐ Written test
- ☐ Performance test
- ☐ Both tests
- ☐ Neither test

19. What formal education background is required of the potential apprentice?

- ☐ H.S. diploma
- ☐ GED diploma
- ☐ Trade or technical school
- ☐ No specific formal background
- ☐ Other

20. Is there a physical fitness requirement of the applicant?
If so, deicribe.

21. Is there a residency requirement of the applicant? _____
If so, describe.

22. Is there an age requirement of the applicant? _____
If so, describe.

23. Does this entry test cover (a) general communication,
computation or knowledge areas? _____
If so, describe.

24. Is a personal interview required of the admissions process? _____
If so, what information is sought via this requirement?

25. How are trainees funded for the ATP?

	<u>Applies</u>	<u>Does not Apply</u>
(a) Carried on company payroll.	_____	_____
(b) Sponsored by Private Industry Council (formerly CETA).	_____	_____
(c) Union sponsored.	_____	_____
(d) Local government sponsored.	_____	_____
(e) Self sponsored.	_____	_____
(f) Other endowment.	_____	_____

26. On what payroll is the apprentice supported?

	<u>Applies</u>	<u>Does not Apply</u>
(a) Company payroll.	_____	_____
(b) PIC.	_____	_____
(c) Union.	_____	_____
(d) Local Government.	_____	_____
(e) Self sponsored.	_____	_____
(f) Other - specify.	_____	_____

What is the student characteristics distribution for the following?
(Percentage of total.)

27. (a) Black _____ - White _____ Hispanic _____
Asian _____ Other _____
(b) Male _____ Female _____

28. Previous level of education completed.

9th Yr. H.S. _____
10th Yr. H.S. _____
11th Yr. H.S. _____
High School Graduate _____
Some college _____
Prior trade school _____

29. General Aptitude Test Scores - Describe aptitude test and score distribution.

30. Is student support functional component existing in the ATP to assist in reading school or socially related problems for the students?

_____ Financial support advising and resources.
_____ Academic counseling and advising.
_____ Tutoring services.
_____ Group planned social events.
_____ Student lounge areas.
_____ Student clubs.
_____ Planned field trips.
_____ Other.

D. Training Facilities

31. (a) Do separate training facilities exist for the ATP other than the company(ies) shipyards (specifically for training)? If yes, how did these evolve?

(b) Are laboratory facilities available, including teaching aids, computer instruction, etc? Elaborate.

	<u>Available</u>
(1) Audio tapes/recorders.	_____
(2) Teleconferencing.	_____
(3) Slide projectors.	_____
(4) Audio/slide projectors.	_____
(5) Overhead projector.	_____
(6) Microfiche viewers.	_____

- (7) Microfilm viewers. _____
- (8) Television. _____
 - a) Video cassette. _____
 - b) Video disc. _____
 - c) Interactive video disc. _____
- (9) Teaching Machines. _____
 - a) Branching (still visual/audio). _____
 - b) Branching motion visual/audio. _____
- (10) Procedure trainers. _____
- (11) Models. _____
- (12) Simulators. _____
- (13) Computer assisted instruction. _____
 - a) Stand alone. _____
 - b) Networks. _____

32. (a) Are portions--segments of the ATP conducted at facilities other than company (companies) training facilities? If so, where?

(b) Are portions of the training program contracted out of the organization? If so, describe.

33. Is there a support or liaison with the local community college or vocational technical center for training? _____
 If so describe.

II. TRAINING PROCESS

A. Curriculum

34. How are curriculum decisions made?

Does not
Applies Apply

(a) By a staff decision.

(b) By a task analysis.

(c) According to some set standard.

35. What inputs are used in curriculum decision making?

No
Evidence Evidence

(a) Task Analysis Data (documentary-
 equipments; job descriptions).

(b) Employee suggestions.

(c) Instructor inputs.

(d) Established shipyard developed
 standards.

(e) No inputs.

(f) Some combination of above.

	<u>Evidence</u>	<u>No Evidence</u>
(g) Union established work standards.	_____	_____
(h) State established work standards.	_____	_____
36. Are the curriculum objectives in writing and available for review? If so, are the objectives behaviorally stated with performance criteria?		

37. Is an established formal curriculum existent?

	<u>Evidence</u>	<u>No Evidence</u>
(a) In written form.	_____	_____
(b) Complete with specific behavioral objectives.	_____	_____
(c) Broken into units of instruction.	_____	_____
(d) Segmented into classroom instruction and lab or OJT instruction.	_____	_____
(e) Are behavioral objectives parallel with task analysis (Q15).	_____	_____

38. Are criterion-referenced evaluation instruments available?

	<u>Evidence</u>	<u>No Evidence</u>
(a) With a formatted evaluation plan.	_____	_____
(b) Scheduled unit or subject tests.	_____	_____
(c) A method of evaluating OJT/Lab instruction.	_____	_____

		No
	<u>Evidence</u>	<u>Evidence</u>

- | | | | |
|-----|--|-------|-------|
| (d) | A record keeping system for tracking trainee progress. | _____ | _____ |
| (e) | A feedback loop to the ATP program. | _____ | _____ |
| (f) | A tie to placement and follow-up. | _____ | _____ |
| (g) | Pretests - post tests | _____ | _____ |

39. Are library facilities, reference materials, audio-visual and training aids available to students and instructors?

40. Are textbooks, printed materials, etc., available to the trainees? Describe.

B. Management of the Training Process

41. (a) Is instruction self-paced or regimented?

Yes	No
-----	----

- | | | | |
|-----|-----------------------------------|--|--|
| (1) | Students enter at any time. | | |
| (2) | Exit upon completion at any time. | | |
| (3) | Advance at own pace. | | |
| (4) | Pretests - post test. | | |
| (5) | Self-paced instruction packages. | | |

(b) Describe which portions of the instruction are self-paced or regimented as identified.

42. Is a tracking system present to ensure that students have mastered the entire curriculum including lab, OJT and classroom work? If So, describe.

43. Are evaluation results utilized for program improvement?

	<u>Evidence</u>	<u>No Evidence</u>
(a) Is there a placement and follow-up outcomes measure?	_____	_____
(b) Is there a measure of trainee effectiveness at entry-level?	_____	_____
(c) Is there an overall final examination?	_____	_____

Please elaborate on methodology.

Yes No

- 44 .Are there extraneous forces acting upon the program for which ATP management has little or no control (i.e., union mandates as to apprentice wages, work conditions, etc.)?

If yes, what are the effects upon the ATP of these forces?

45. Discuss the student retention and/or success **rates for** program completion and placement (percentage total intake).

(a) Program completion.

White	_____	Male	_____
Black	_____	Female	_____
Asian	_____		
Hispanic	_____		
Other	_____		

(b) Placement after program completion.

White	_____	Male	_____
Black	_____	Female	_____
Asian	_____		
Hispanic	_____		
Other	_____		

(c) Placement before program completion.

White	_____	Male	_____
Black	_____	Female	_____
Asian	_____		
Hispanic	_____		
Other	_____		

C. Training Budget

Yes No

46. Does the ATP have its own budgetary cost center?

47. What are the budgeted lines within the cost center?

	<u>Applies</u>	<u>Does not Apply</u>
(a) Staff (salary, benefits, FICA).	_____	_____
(b) Physical overhead (rent, utilities, equipment leases).	_____	_____
(c) Training (supplies, equipment).	_____	_____

48. What is the cost per trainee hour? \$ _____.

49. What is the operational costs for the ATP per month? \$ _____.

Additional Comments (45 through 49):

50. Can the cost per trainee hour be broken out on a percentage basis as follows?

_____ % staff.

_____ % physical overhead.

_____ % training hardware/software.

Comments:

D. Training Support and Evaluation

51. Is there any program development monitoring process external or internal to the program administration present?

	<u>Applies</u>	<u>Does not</u> <u>Apply</u>
(a) Industry standard.	_____	_____
(b) Certification Program.	_____	_____

Comments:

52. Is the ATP Program reviewed by the city or locale, the representative industry and/or the program participants as successful in meeting the program mission and objectives? If so, cite evidence.

53. Are full time faculty, staff and administrative positions present?

(a) Number full time faculty.

- (b) Number part time faculty.
- (c) Ratio of FT to PT.
- (d) Number of shared faculty (with other programs or schools).
- (e) Number of staff positions and percentage of time dedicated to ATP.
- (f) Number of administrative positions and percentage of time dedicated to ATP.
- (g) Teaching load - (contact hours, preparation time).

Comments:

Yes No

54. Are faculty and staff performances evaluated?

What form of evaluation is utilized? Elaborate:

Yes No

55. Is faculty development activity available to staff?

What form of development activity is available?

Yes No

56. Are there stated job descriptions and qualifications for the staff?

Describe any existing forms of descriptions and/or qualifications.

Describe the background characteristics of the instructional staff. **(Percentage of total.)**

(a) White	_____	Black	_____
Asian	_____	Hispanic	_____
Other	_____		
(b) Male	_____	Female	_____

Highest level of education completed.

_____ High school.
_____ 2 years college.
_____ 4 years college.
_____ Trade school.
_____ Below high school.

58. What are the salary levels of the instructional staff compared to the instructional that of the shipyard trade staff for which they are aiming their instruction?

_____ Below that of the trades.
_____ Higher than that of the trades.
_____ Comparable to their counterparts in the trades.

E. Shipyard Community

59. List those cooperating employers (shipbuilders, ship repair yards, etc.) who participate in the ATP. Identify each in terms of the specifics of its involvement.

<u>Name of Company</u>	<u>Hires ATP Graduates</u>	<u>Sponsors Apprentices</u>	<u>Participates in ATP Decision making Policy, etc.</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

60. How many shipyards/shipbuilders presently are in business in this metropolition area?

(b) Of these, how many can be categorized as:

1. Small (fewer than 50 employees)

2. Medium (51-100 employees)

3. Large (101 or more employees)

61. Describe the geographical distance encompassed by the shipbuilding industry.

62. How many shipyard personnel would you estimate are employed in the local industry?

63. DDL-Interviewer Comments:

- (a) Discuss quality of curriculum.
- (b) Arrangement of ATP.
- (c) Overall support of the ATP by Industry.
- (d) Prediction as to self-sustainability.

STUDENT/PROGRAMM COMPLETER CHECKLIST
FOR
EVALUATION OF MULTI-SHIPYARD COOPERATIVE
TWINING PROGRAMS

Location/Program:

Date:

1. How did you hear about the Cooperative Training Program?
 - a. Newspaper.
 - b. Acquaintance/word of mouth.
 - c. School.
 - d. Employment Agency/State Employment Service.
 - e. Employee of Shipyard.
 - f. Union.
 - g. Shipyard Personnel Office.
 - h. Government agency.
2. Why did you choose to participate in the Cooperative Training Program?
 - a. Necessity of employment.
 - b. Reputation of the training program.
 - c. Family involvement with shipyard industry.
 - d. Other, please specify. _____

3. What did you expect from the program? (Check all that apply.)
 - a. Specific job skills.
 - b. Well paying job immediately after program completion.
 - c. Job offer immediately after completion of program.
 - d. Other, please specify. _____

4. Did the training program meet your needs?

Yes _____ No _____

If not, describe what part(s) of program disappointed you. _____

5. Would you encourage another person to participate in this training program?

Yes _____ No _____

Please discuss your response. _____

6. Do you feel that the completion of the course led to your employment?

Yes _____ No _____

Please discuss your response. _____

7. Was the length of the program:

a. Too Long?

b. Appropriate?

c. Too Short?

Please discuss your response. _____

8. The instructor(s) were well prepared.

Strongly agree Agree Uncertain Disagree Strongly disagree

Please discuss your response. _____

9. The instructor(s) were interested in your progress.

Strongly agree Agree Uncertain Disagree Strongly disagree

Please discuss your response. _____

10. The instructor(s) appeared qualified in the area(s) which they taught.

Strongly agree Agree Uncertain Disagree Strongly disagree

Please discuss your response. _____

11. The best part of the program was _____

12. The least effective part of the program was _____

13. The tuition for your participation in this program was paid by _____

14. The facilities and equipment (Lab, tools, library, classroom, supplies) for the training program were:

a. Excellent.

b. Adequate.

c. Poor.

Please explain your response. _____

15. The classroom instruction provided by the program was:

a. Challenging.

b. Generally routine but effective.

c. Generally inadequate.

d. Poor.

Please explain your response. _____

16. The on-the-job and/or lab portion of the course was:

- a. Challenging.
- b. Generally routine but effective.
- c. Generally inadequate.
- d. Poor.

Please explain your response. _____

17. The exams given for the course were (select any that apply):

- a. Fair Covered all material taught during the segments of training preceding exam.
- b. Poorly timed - Out of sequence with instruction.
- c. Properly written - Easy to understand questions.
- d. Poorly written - Questions could have many different responses.
- e. Properly measured your performances and abilities.

Additional comments: _____

18. The size of the classes/labs were:

- a. Reasonable.
- b. Overcrowded.

Explain responses: _____

19. Are you interested in a long term career in the shipbuilding industry?

Yes _____ No _____

Elaborate: _____

20. Did you have to join the union as a condition of your employment?

Yes _____ No _____

Elaborate: _____

21. Are new tradeworkers who are not cooperative training program completers able to earn more money?

Yes _____ No _____

Elaborate: _____

22. How are you treated by journeymen trades workers?

a. Accepted as a member of the team.

b. Scorned and looked down upon.

c. Used as a "gopher".

d. Other, please explain. _____

23. Do you find that as a result of your training you have more practical skills than other new journeymen or old-timers?

Yes _____ No _____

Elaborate: _____

24. Do you often have transportation problems to your job sites and training?

Yes _____ No _____

Elaborate: _____

Any additional comments: _____

INSTRUCTOR QUESTIONNAIRE
F O R
EVALUATION OF MULTI-SHIPYARD COOPERATIVE
TRAINING PROGRAMS

Site Location:

Investigator(s):

Instructor:

Date:

1. How did you become involved in participating in the Cooperative Training Program (CTP) ?

- | | <u>Applies</u> | <u>Does not
Apply</u> |
|---|----------------|---------------------------|
| a. Through company management/staff interest in fostering a skilled work force. | _____ | _____ |
| b. Through union interest in developing a skilled work force. | _____ | _____ |
| c. Through Private Industry Council interest in training and/or promoting a trained work force. | _____ | _____ |
| d. Through government interest in promoting industry productivity. | _____ | _____ |
| e. Through other special interest group(s) interest(s) in promoting training opportunity(ies) for segments of the work force. | _____ | _____ |
| f. Any combination of the above. | _____ | _____ |

(Complete the following if instructor is affiliated with a participating shipbuilder.)

2. In your training center, which one or more of the above cited groups provided the initial impetus for the CTP? (Describe response.)

3. Is a person, organization, concept or event a driving force that sustains program participation within your training center? If so, describe.

4. What is the level of involvement with respect to the CTP of your training center for each of the following types of activity? (Comment as appropriate on each.)

	I N V O L V E M E N T		
	(Meetings)		
	Daily	Periodic Input <u>Scheduled</u>	<u>Infrequent</u>
Recruitment of trainees	<hr/>	<hr/>	<hr/>
	<hr/>	<hr/>	<hr/>
Financial sponsorship of trainees	<hr/>	<hr/>	<hr/>
	<hr/>	<hr/>	<hr/>
Endowment of training program	<hr/>	<hr/>	<hr/>
	<hr/>	<hr/>	<hr/>
ATP policy	<hr/>	<hr/>	<hr/>
	<hr/>	<hr/>	<hr/>

Public relations/publicity _____

Hiring of program completers _____

5. In your training agency, how are trainees recruited for training?

	Applies	Does not Apply
--	---------	-------------------

- | | | |
|---|-------|-------|
| a. From within the company/company employment department. | _____ | _____ |
| b. Through local schools. | _____ | _____ |
| c. Through local state employment service. | _____ | _____ |
| d. Through newspaper. | _____ | _____ |
| e. Through union referrals. | _____ | _____ |
| f. Private Industry Council sponsorship (formerly CETA) . | _____ | _____ |
| g. Other shipyard companies. | _____ | _____ |
| h. Other means. | _____ | _____ |

6. What are the program prerequisites for entry? _____

7. Do all trainees meet these requirements? _____

8. How are trainees funded for the CTP?

<u>Applies</u>	<u>Does not Apply</u>
----------------	---------------------------

a. Carried on company payroll.

_____	_____
-------	-------

b. Sponsored by Private Industry **Council** (formerly CETA) .

_____	_____
-------	-------

c. Union sponsored.

_____	_____
-------	-------

d. Local government sponsored.

_____	_____
-------	-------

e. Self sponsored.

_____	_____
-------	-------

f. Other endowment.

_____	_____
-------	-------

9. What remedial/basic education is required of the trainees? _____

10. On what payroll is the apprentice supported (select from above)?

<u>Applies</u>	<u>Does not Apply</u>
----------------	---------------------------

a. Company payroll.

_____	_____
-------	-------

b. PIC.

_____	_____
-------	-------

c. Union.

_____	_____
-------	-------

d. Local Government.

_____	_____
-------	-------

e. Self sponsored.

_____	_____
-------	-------

f. Other - specify.

_____	_____
-------	-------

11. a. Are portions--segments of the CTP **conducted** outside of your school facilities? If so, where?

b. What are your perceptions of the CTP training facilities (internal and external)?

12. How do you design your courses and curriculum? (Check all that apply).

- (a) By committee of instructors.
- (b) By committee of instructors and trades workers.
- (c) By inputs from a shipbuilder council.
- (d) Other, please specify. _____

13. Does your program include a formal laboratory experience for the apprentice?

_____ yes _____ no

Is this laboratory experience a planned experience complete with an evaluation component?

_____ yes _____ no

Elaborate _____

14. What types of visual aids or training devices do you utilize to supplement your instructions?

- (a) model cut-swags
- (b) mock-ups
- (c) live training devices
- (d) slides, visuals
- (e) computer aided training aids

(f) other, specify _____

15. Does your course include on-the-job experiences under a master tradesman?

_____ yes _____ no

Please elaborate _____

16. Is your curriculum competency - based or lock-stepped? _____

17. What is your perception of the CTP curriculum, in terms of each of the following?

a. classroom training? _____

b. On-the-job training? _____

c. laboratory training? _____

18. What is your perception of the CTP graduate with reference to each of the following?

a. Entry level job skills? _____

b. Entry level job knowledge? _____

19. How are the trainees evaluated to determine each of these skill or knowledge areas? _____

c. Work attitudes (dependability, attendance, punctuality, interworker relationships, etc.)?

d. Trainee initial work expectations (tasks, job title, salary/wage, etc.)?

e. Trainee entry level aptitude/ability to learn and master subject matter?

20. Based on your shipyard experience, discuss how a CTP graduate upon entry into the work force would compare to a new hire without the benefit of this training.

21. What form of on-the-job **trainee monitoring is** currently utilized to ensure that your students are exposed to all facets of the training program and job requirements? (Check all that apply).

- ☐ a standardized checklist
- ☐ an informal system of observation
- ☐ periodic exams
- ☐ verbal discussions with trades workers or master mechanics

22. What has your experiences been with respect to the CTP management, their responses to inquiries, criticism and requests?

23. What type of evaluation feedback do you obtain about the successes of your students after program completion? _____

24. From an overall perspective, what are your impressions of the CTP, its graduate and the economic benefits of the program?

25. What types of additional staff development experiences are available to you for your continued improvement, education and professional development?

- ☐ in-service training
- ☐ outside college courses
- ☐ formal administrative evaluations
- ☐ other, please describe

26. Does the training center require you to be a state certified instructor?

Yes _____ No _____

27. What factors entered into your decision to become an CTP instructor?

	<u>Applies</u>	<u>Does not</u> <u>Apply</u>
a. Desire to promote a trained workforce.	_____	_____
b. Additional or increased salary.	_____	_____
c. Desire for a change of working environment.	_____	_____

28. What problems have you encountered in your instructor's role which you would like addressed? NARRATIVE

SURVEY QUESTIONNAIRE OF PARTICIPATING EMPLOYERS
FOR
EVALUATION OF MULTI-SHIPYARD COOPERATIVE
TRAINING PROGRAMS

Location:

Investigator(s):

Employer:

Date:

1. How did you become involved in participating in the Apprenticeship Training Program?

- | | <u>Does not
Applies Apply</u> |
|---|-----------------------------------|
| a. Through company management/staff interest in fostering a skilled work force. | _____ |
| b. Through union interest in fostering a skilled work force. | _____ |
| c. Through Private Industry Council interest in training and/or promoting a trained work force. | _____ |
| d. Through government interest in promoting industry productivity. | _____ |
| e. Through other special interest group(s) interest(s) in promoting training opportunity(ies) for segments of the work force. | _____ |
| f. Any combination of the above. | _____ |

2. In your firm, which one or more of the above cited groups provided the initial impetus for the ATP? (Describe response.)

3. In a person, organizations, concept or event a driving force that sustains program participation within your firm? If so, describe.

4. What is the level of involvement with respect to the ATP of your firm for each of the following types of activity. (Comment as appropriate on each.)

	I N V O L V E M E N T		
	(Meetings)		
	Daily	Periodic Input <u>Scheduled</u>	<u>Infrequent</u>
Recruitment of Trainees:	_____	_____	_____
<hr/>			
Financial Sponsorship of Trainees:	_____	_____	_____
<hr/>			
Endowment of Training Program:	_____	_____	_____
<hr/>			
ATP Policy:	<hr/>		
<hr/>			

Public Relations/Publicity: _____

Hiring of Program Completers: _____

5. In your firm, how are trainees recruited for the ATP?

Does not
Applies Apply

- a. From within the company/company employment department. _____
- b. Through local schools. _____
- c. Through local state employment service. _____
- d. Through newspaper. _____
- e. Through union referrals. _____
- f. Private Industry Council sponsorship (formerly CETA) . _____
- g. Other shipyard companies. _____
- h. Other means. _____

6. How are trainees funded for the ATP?

Does not
Applies Apply

- a. Carried on company payroll. _____
- b. Sponsored by Private Industry Council (formerly CETA) . _____
- c. Union sponsored. _____
- d. Local government sponsored. _____
- e. Self sponsored. _____
- f. Other endowment. _____

7. On what **payroll** is the apprentice **supported** (select from above)?

	<u>Applies</u>	<u>Does not</u> <u>Apply</u>
a. Company payroll.	_____	_____
b. PIC.	_____	_____
c. Union.	_____	_____
d. Local Government.	_____	_____
e. Self sponsored.	_____	_____
f. Other - specify.	_____	_____

8. a. Are portions--segments of the ATP conducted at your firm's facilities? If so, where?

b. What are your perceptions of the ATP training facilities?

9. What is your perception of the ATP curriculum, in terms of each of the following:

a. Classroom Training: _____

b. On-the-Job Training: _____

c. Laboratory Training: _____

10. What is your perception of the ATP graduate with reference to each of the following:

a. Entry level job skills: _____

b. Entry level job knowledge: _____

c. Work attitudes (dependability, attendance, punctuality, interworker relationships, etc.).

d. Trainee initial work expectations (tasks, job title, salary/wage, etc.).

11. Discuss how an ATP graduate upon entry into your work force compared to a new hire without the benefit of this training.

12. What has your experiences been with respect to the ATP management, their responses to inquiries, criticism and requests?

13. From an overall perspective, what are your impressions of the ATP, its graduate and the economic benefits of the program?
